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of Transportation

**National Highway  
Traffic Safety  
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400 Seventh Street, S.W.  
Washington, D.C. 20590

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Division of Arvin/Calspan  
[REDACTED] New York [REDACTED]

CALSPAN ON-SITE AIR BAG DEPLOYMENT INVESTIGATION

CALSPAN CASE NO. 91-12

FLEET - 1990 DODGE SHADOW

LOCATION [REDACTED]

ACCIDENT DATE - [REDACTED] 1991

Contract No. DTNH22-87-C-27169

Prepared for:

U.S. Department of Transportation  
National Highway Traffic Safety Administration  
Washington, D.C. 20590

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The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points be coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicle(s) or their safety systems.

## TECHNICAL REPORT STANDARD TITLE PAGE

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15. Supplementary Notes On-site investigation of an air bag deployment crash that involved a 1990 Dodge Shadow. The driver was presumably slumped forward at impact and sustained fatal injuries from her engagement with the deploying air bag and steering assembly.			
16. Abstract This on-site investigation focused on a 1990 Dodge Shadow that was involved in a center frontal impact sequence with a utility pole which deployed its supplemental driver air bag system. The vehicle was driven by a 36 year old female, 63", 104-120 lbs., with a history of epilepsy. She was wearing the active 3-point lap and shoulder belt system. The vehicle was traveling westbound on a rural two lane state route in a 35 mph speed zone. The driver apparently suffered an illness or had fallen asleep as the vehicle descended a hill and departed the left edge of the roadway. The left front corner area of the vehicle impacted two 4x6" concrete fence posts resulting in minor damage to the vehicle. The center frontal area of the Dodge Shadow subsequently impacted a 10" diameter utility pole that was located 5'9" west of the second fence post and 8'2" outboard of the south road edge. The 12 o'clock direction of force impact resulted in a velocity change of 14.4 mph (14.5" of bumper crush) which deployed the vehicle's supplemental driver air bag system. The driver was presumably against, or within a close proximity of the steering assembly as the air bag deployed. She engaged the deploying air bag and steering assembly which resulted in bilateral rib fractures, multiple soft tissue contusions, a ruptured spleen, and a ruptured abdominal aorta. She was subsequently thrust into the left front seat back by the air bag which resulted in ecchymosis of the posterior aspect of the heart and extensive subarachnoid hemorrhage. The driver was transported to a local hospital where she expired 4 hours after the crash.			
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CALSPAN ON-SITE AIR BAG DEPLOYMENT INVESTIGATION

CALSPAN CASE NO. 91-12  
FLEET - 1990 DODGE SHADOW  
LOCATION - [REDACTED]

SUMMARY

This crash occurred on a state route in a rural/residential area on [REDACTED] 1991, at 2317 hours in [REDACTED]. At the time of the crash, the asphalt road surface was dry and the weather was clear. The involved vehicle was a 1990 Dodge Shadow 4 dr. sedan (V.I.N.: [REDACTED]), with an odometer reading of 18,052 miles. The Dodge Shadow was equipped with a driver's side air bag system that deployed during the crash sequence. The vehicle was owned and driven by a 36 year old female with a reported height of 63.7" and a weight estimated at 104-120 lbs. She also had a history of epilepsy and was on medication (Dilantin) to control the illness.

The vehicle was traveling in a westerly direction on the state route at an unknown, but reasonable rate of speed. The posted speed limit in the area was 35 mph. As the driver descended a hill, she either suffered from an illness (possible seizure) or had fallen asleep. The vehicle subsequently drifted to the left and gradually departed the left (south) road edge in a tracking mode. The vehicle continued forward on the grassy area that bordered the south road edge for a police reported distance of 56 ft. on a travel path that nearly paralleled the road edge.

The left front corner area of the vehicle sideswiped a 4 x 6" concrete fence post that was located 8'2" outboard of the south road edge. The impact fractured the post and produced sideswipe type damage that extended 23.75" rearward on the left front fender. The minor 12 o'clock direction of force impact produced minor damage to the vehicle and did not alter its trajectory. The vehicle continued forward and impacted a second concrete fence post that was located 10 ft. west of the first struck post. Direct contact damage extended 5" inboard of the left front corner onto the bumper facia. The impact fractured the fence post and separated the corner area of the bumper facia from the vehicle. Although the extent of frontal crush from the fence post impact was unknown (due to the subsequent center frontal utility pole impact), it was doubtful that the impact resulted in a sufficient longitudinal deceleration required to deploy the vehicle's driver air bag system.

The Dodge Shadow continued forward and impacted a 10" diameter wooden utility pole that was located 5'9" west of the 2nd struck fence post and 6'4" south of the south road edge. The impact involved the front bumper, grille, and hood of the vehicle with the direct contact damage extending 1.75-8.25" left of the vehicle's center line. Impact speed for the pole impact was computed at 16.0 mph by the damage and trajectory mode of the CRASHPC program. As a result of the 12 o'clock direction of force impact, the vehicle underwent a longitudinal deceleration of 14.4 mph that was of sufficient magnitude to deploy the driver air bag system. Maximum frontal crush was 14.5" located on the bumper 4.75" left of center. The impact deformed the entire width of the bumper resulting in a induced and direct contact damage length of 48" (bumper corner to bumper corner). Crush values at bumper level were as follows:  $C_1=0.25"$ ,  $C_2=5.75"$ ,  $C_3=13.25"$ ,  $C_4=7.4"$ ,  $C_5=2.25"$ ,  $C_6=0.0"$ .

SUMMARY (CONT'D.)

The driver of the Dodge Shadow had her seat adjusted to a forward position and the tilt steering column set to the center adjustment point. She was wearing the active 3-point lap and shoulder belt system. Belt usage was determined from snag marks found on the belt webbing that were probably produced by a stick pin jewelry item that was fastened to the left side of her dress. The investigating police officer noted the belt fastened around the driver as he arrived on-scene within seconds of the crash. At impact with the utility pole, the driver was presumably slumped forward against, or within a close proximity of the steering wheel. She initiated a forward trajectory in response to the center frontal impact and engaged the deploying air bag, which resulted in contusions over both eyelids (AIS-1), abrasions with contusions to the underside area of the chin (AIS-1), abrasions of the anterior neck (AIS-1), contusions of the right anterior neck (AIS-1), and contusions over the outer area of both breasts (AIS-1). Her loading force was transmitted through the air bag and into the steering assembly which deformed the upper rim 0.25" forward and compressed the energy absorbing steering column 1.6" (shear capsule separation). As a result of her involvement with the deploying air bag and loading of the steering assembly, the driver sustained multiple bilateral rib fractures (AIS-4), a rupture of the abdominal aorta (AIS-5), and a ruptured spleen with extensive retroperitoneal hemorrhage (AIS-3). The driver loaded the shoulder belt webbing during her forward trajectory which contused the left anterior shoulder (AIS-1) and produced abrasions with contusions to the left side of her neck (AIS-1). The driver's knees loaded the knee bolster which produced a nylon stocking transfer to the left side of the bolster. She sustained two lacerations of the right knee (AIS-1) and a contusion over the left knee (AIS-1) from bolster contact.

The driver was subsequently thrust rearward into the seat back by the deploying air bag. As a result, the posterior aspect of her heart impacted the back of the chest which resulted in ecchymosis of the posterior aspect of the heart (AIS-3). Her head probably rotated over the seat back, which resulted in an extensive subarachnoid hemorrhage (AIS-3) from hyperextension of the head.

The vehicle came to rest against the struck pole facing in a westerly direction. The driver slumped to her right and probably snagged the belt webbing with the jewelry pin which ripped the front of her dress. She slid out of the shoulder belt webbing and came to rest with her head and torso resting on the right front seat cushion.

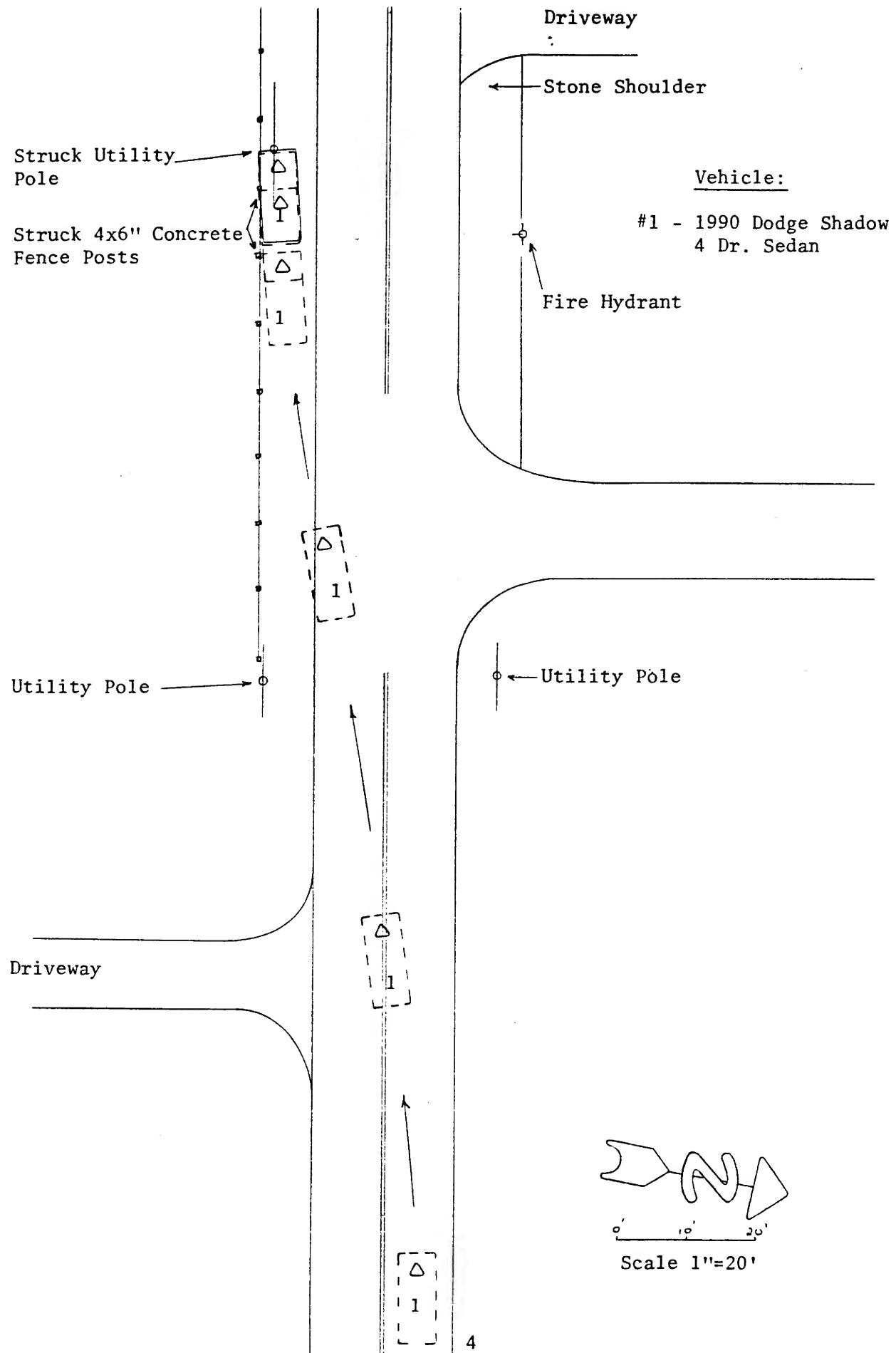
The investigating police officer was conducting a criminal investigation several hundred feet down the road. He heard the impact and noted the tail-lights of the vehicle off-road. The officer immediately responded to the crash scene and found the driver slumped across the interior of the vehicle. He and his partner noted the interior of the vehicle was filled with a smoke-like substance. The partner used his flashlight to shatter the left rear door window to gain access to the vehicle and driver. They noted that she was breathing, but not moving within the vehicle. The officer immediately called for fire and rescue assistance. The driver was subsequently removed from the vehicle and transported to a local hospital where she expired at 0323 hours following surgery for removal of her spleen.

SUMMARY (CONT'D.)

The deployed air bag was approximately 23" in diameter and was vented by two 1 1/8" ports located within the 12 o'clock sector on the back side of the bag (away from the driver). The air bag was not tethered and was not damaged during the deployment and crash sequence. The outer module flap opened at the designated tear points in an H configuration. The upper and lower flaps were symmetrical in size with a vertical measurement of 2.5" and a horizontal width of 6.75". There was no gas generant residue on the bag or at the radial ports of the inflator.

The NHTSA COTR notified the National Transportation Safety Board of the U.S. Department of Transportation's involvement in this crash.

Accident Schematic  
Calspan Case No. 91-12



CALSPAN ON-SITE AIR BAG DEPLOYMENT INVESTIGATION

CALSPAN CASE NO. 91-12

FLEET - 1990 DODGE SHADOW  
LOCATION - [REDACTED]

ACCIDENT DATA

Location: Rural state route  
City/Township: [REDACTED]  
Area/Type: Rural Residential  
Accident Date/Time: [REDACTED], 1991, 2317 hours  
Investigating Police Agency: [REDACTED] State Police  
Accident Type: Car/Utility pole, center frontal impact  
Air Bag Vehicle Driver Injury Severity: Critical (AIS-5)

AMBIENCE

Viewing Conditions: Dark, unlighted  
Weather: Clear  
Precipitation: None  
Road Surface: Dry

HIGHWAY

Type: State route  
Number of Lanes: 2  
Width: 20'6"  
Surface: Asphalt  
Median: None  
Edge: North edge - 9' stone shoulder  
South edge - Grass shoulder

### HIGHWAY (CONT'D.)

Vertical Alignment:	Sag at POI
Horizontal Alignment:	Straight
Estimated Coefficient of Friction:	Road Surface - .65 Off-road surface - .55
Traffic Density:	No other traffic at the time of the crash

### TRAFFIC CONTROLS

Signals:	None
Signs:	No pertinent signs
Markings:	Yellow full barrier center lines, solid white edge lines
Speed Limit:	35 mph

### VEHICLE

Description:	1990 Dodge Shadow, 4 dr. hatchback
V.I.N.:	1B3XP48K5LN (production number deleted)
Color:	White
Odometer:	18,052 miles
Engine:	4 cylinder, 2.5 liter
Transmission:	3-speed automatic, console mounted transmission selecter lever
Steering:	Power assisted rack and pinion
Brakes:	Power assisted front disc, rear drum
Padding:	Upper and mid instrument panel, headliner, sunvisors, soft edged steering wheel rim and air bag module cover, door panels, door armrests, adjustable head restraints
Active Restraints:	3-point continuous loop lap and shoulder belts without slack adjusters in the four outboard seated positions, center rear lap belt

## VEHICLE (CONT'D.)

Passive Restraints: Supplemental driver air bag system that deployed at impact with the utility pole

Defects: None

Tow Status: Towed due to damage

## VEHICLE DAMAGE

Exterior: The 1990 Dodge Shadow was involved in a gradual left side road departure and subsequently impacted two 4 x 6" concrete fence posts and a 10" diameter wooden utility pole. Based on damage to the vehicle and inspection of the crash scene, the vehicle's driver air bag system probably deployed at impact with the utility pole.

The left front corner area of the vehicle initially side-swiped the first fence post that was located 8'2" south of the south road edge. Damage to the vehicle was minimal which involved a shallow dent to the front third of the left front fender with paint abrasions. The damage extended 23.75" rearward on the fender before ending at a point 7.75" forward of the left front axle. The left front tire probably impacted the fence post which resulted in an airout of the tire. There was no visible damage to the tire or alloy wheel.

The vehicle continued forward and impacted a second concrete fence post with the left corner area of the front bumper. Direct contact damage began at the bumper corner and extended 5" inboard onto the bumper facia. The concrete post impacts separated the left corner wrap-around of the bumper facia. The extent of bumper crush was minimal, but unknown due to the bumper displacement from the utility pole impact.

The center frontal area of the Dodge Shadow impacted the 10" diameter utility pole which resulted in moderate damage to the vehicle. Maximum crush was 14.5" located on the bumper reinforcement bar 4.75" left of center. Direct contact damage on the bumper facia began 26.25" inboard of the right corner and extended 8.75" to the left. The impact deformed the entire width of the front bumper reinforcement bar resulting in a combined induced and direct contact damage length (Field L) of 48.0". Crush values at bumper level were as follows:  $C_1=0.25"$ ,  $C_2=5.75"$ ,  $C_3=13.25"$ ,  $C_4=7.4"$ ,  $C_5=2.25"$ ,  $C_6=0.0"$ .

## VEHICLE DAMAGE (CONT'D.)

Exterior  
(Cont'd.): Components damaged by the utility pole impact included the bumper facia, bumper reinforcement bar, grille, hood, radiator support panel and the radiator and air conditioning condenser. Rescue personnel opened the right front door beyond its normal limits which damaged the right front fender, leading edge of the door, and the door hinges. All doors remained closed and were fully operational post-crash.

CDC:	<u>Event No.</u>	<u>CDC</u>	<u>Object Struck</u>
	3	12-FCEN-2	10" diameter wooden utility pole
	2	12-FLEE-1	4x6" concrete fence post
	1	12-FLES-3	4x6" concrete fence post

Repair Cost: Total loss per insurance company

Interior: The interior of the Dodge Shadow sustained minor damage that was associated with air bag deployment and driver contact with interior components. As the air bag deployed, its deployment space was limited by the forward position of the driver. Her subsequent loading force was transmitted through the bag and into the steering assembly which deformed the upper steering wheel rim approximately 0.25" forward. The driver's loading force, in probable combination with air bag deployment, compressed the energy absorbing steering column 1.6". Shear capsule compression was measured at 1.375" on the left unit and at 1.6" on the right. The right shear bracket was completely disengaged from the block.

The driver's knees contacted the rigid knee bolster which resulted in injury to both knees; however, only the left knee produced contact evidence. A nylon stocking transfer was noted to the fuse box cover 17.75-19.75" left of center and 15-17" below the upper instrument panel.

The driver was wearing the active 3-point lap and shoulder belt system at impact; however, due to her forward position, did not sufficiently load the belt webbing. There were no load induced stretch marks on the belt webbing or at the B-pillar mounted D-ring. The latchplate did yield several faint routine wear marks which indicated that the driver was a frequent, but not full-time belt user. As the driver slumped to her right following the impact sequence, a jewelry pin that was affixed to the left side of her dress snagged the shoulder belt webbing. The snags were located on the outside surface of the shoulder belt webbing and extended 22-26" and 30.25-36.75" vertically above the floor mounted anchor. Both snags were located .375" inboard of the belt edges. A third snag was located at both edges of the belt 36.75" above the floor anchor. The snag resembled superficial cuts at the edges and contained cloth fibers (probable dress fibers).

## AIR BAG SYSTEM

The 1990 Dodge Shadow was equipped with a supplemental driver air bag system that deployed as the vehicle impacted the utility pole. The radiator support panel mounted crash sensors were not damaged; however, they were canted inboard slightly due to the deformation of the panel. All associated wiring appeared to be intact.

The air bag module was mounted to a two spoke steering wheel with the spokes located at the 4 and 8 o'clock positions. The module flaps opened in an H-configuration at the designated tear points with the upper flap measuring 6 11/16" horizontally and 2 3/8" vertically. The lower flap measured 6 3/4" horizontally and 2 9/16" vertically. There was no damage or evidence of occupant contact to the flaps.

The air bag measured approximately 23" in diameter in its deflated state. There were no internal tether straps for the air bag. The center area of the bag, however, was reinforced with a round 5 1/2" diameter reinforcement affixed to the inside surface of the bag. There was no damage or evidence of occupant contact (i.e., makeup transfers, etc.) to the bag. The air bag was vented by two 1 1/8" diameter ports located at the 12 o'clock position of the bag on the back side 3 1/4" beyond the peripheral seam. The following numbers were stamped on the bag adjacent to the inflator module:



There was no gas generant residue on or around the air bag. The inner surface of the air bag was examined using a small diameter flashlight inserted into a vent port. Again there was no evidence of gas generant residue on the bag or around the radial ports of the aluminum inflator module.

## VEHICLE VELOCITY ESTIMATES

Travel Speed: 25-30 mph (estimated)

Impact Speed: \*16.0 mph

Total  $\Delta V$ : 14.4 mph

Longitudinal  $\Delta V$ : -14.4 mph

Lateral  $\Delta V$ : 0.0 mph

Energy Absorption: 19655.9 ft.-lbs.

\* The impact speed and velocity changes were computed by the damage and trajectory algorithm of the CRASHPC program for the utility pole impact (impact #3).

## COLLISION SEQUENCE

### Pre-Crash:

The Dodge Shadow was traveling in a westerly direction on the two lane state route at an unknown, but reasonable rate of speed in a 35 mph speed zone. The driver of the vehicle either suffered an illness (history of epilepsy), or had fallen asleep as the vehicle descended a hill. The Dodge Shadow drifted to the left and gradually departed the left (south) road edge in a tracking orientation. The vehicle continued forward on the grassy area that bordered the south road edge for a police reported distance of 56 ft. on a travel path that nearly paralleled the road edge.

### Crash:

The left front corner area of the vehicle sideswiped a 4x6" concrete fence post that was located 8'2" outboard of the road edge. The 12 o'clock direction of force impact fractured the post and produced sideswipe type damage to the vehicle that extended 23.75" rearward on the left front fender. The vehicle continued forward and impacted a second concrete fence post that was located 10' west of the first struck post. Direct contact damage on the vehicle began at the left bumper corner and extended 5" inboard onto the bumper facia. The 12 o'clock direction of force corner impact fractured the concrete post and separated the corner of the bumper facia from the vehicle. The fence post impacts did not alter the trajectory of the vehicle or result in a sufficient longitudinal deceleration required to deploy the vehicle's driver air bag system.

The Dodge Shadow continued forward and impacted a 10" diameter wooden utility pole with its center frontal area. The pole was located 5'9" west of the second struck fence post and 6'4" south of the road edge. Impact speed was computed at 16.0 mph by the damage and trajectory mode of the CRASHPC program. The 12 o'clock direction of force impact crushed the front bumper to a depth of 14.5" and also crushed the radiator support panel and hood face. As a result of the pole impact, the vehicle underwent a velocity change of 14.4 mph. The impact induced deceleration was of sufficient magnitude to deploy the vehicle's driver air bag system.

### Post-Crash:

#### Final Rest -

The Dodge Shadow came to rest against the struck utility pole facing in its original westerly direction.

#### Driver Activities -

The driver slumped to her right and snagged the shoulder belt webbing with a jewelry pin that was fastened to the left side of her dress over her chest. The pin subsequently ripped the front of her dress vertically as she slid out of the shoulder belt and came to rest with her head and torso resting on the front seat cushion. At rest, she was lying on her right side facing the front of the vehicle with her buttocks on the left front seat cushion.

## COLLISION SEQUENCE (CONT'D.)

### Post-Crash (Cont'd.):

Police Activities - The investigating officer and his partner were involved in a criminal investigation several hundred feet east of the crash scene. The officers stated that they heard a loud impact noise and focused their attention toward the crash scene. They observed the taillights of the vehicle off-road and immediately proceeded to the scene. As they approached the vehicle, the officers noted the interior of the vehicle was filled with smoke and all windows and doors were fully closed and locked. The investigating officer's partner used his flashlight to shatter the left rear door glass to gain access to the vehicle and driver. They subsequently found the driver slumped across the vehicle in an unconscious state. The officer called for fire and rescue assistance.

Rescue Activities - The driver's brother, who was the local fire chief, lived nearby the crash scene and was the first emergency medical technician to arrive on-scene. As the rescue squad arrived, they placed a cervical collar on the driver and carefully placed her on a backboard and removed her from the vehicle through the right front door opening. The driver was subsequently transported to a local hospital where she was evaluated and taken into surgery. The driver expired at 0323 hours, 4 hours and 5 minutes following the crash.

Scene Clearance - A local towing service was called to the scene to remove the vehicle. The officers did not expect the driver's injuries to be severe and therefore did not call for the accident investigation personnel.

## HUMAN FACTORS/OCCUPANT DATA

Driver: 36 year old female

Height: 63.8"

Weight: 104-120 lbs. (estimated by family and medical examiner respectively)

Active Restraint System Usage: 3-point lap and shoulder belt

Usage Source: Investigating police officer, driver injuries, snagged belt webbing from driver's jewelry

Eyeglasses: Unknown, broken sunglasses reportedly found in vehicle

Vehicle Familiarity: 2 years

HUMAN FACTORS/OCCUPANT DATA (CONT'D.)

Route Familiarity: Frequently traveled on road per family  
Trip Plan: En route to residence  
Manner of Leaving Scene: Ambulance  
Type of Medical Treatment: Transported to a local hospital where she expired following abdominal surgery at 0323 hours (4 hours, 5 minutes following the crash)

DRIVER INJURIES

<u>Injury</u>	<u>Severity (OIC/AIS)</u>	<u>Source</u>
Rupture of the abdominal aorta	Critical (MCRA-5)	Air bag/steering wheel loading
Multiple bilateral rib fractures (rib numbers not specified) with pulmonary edema	Severe (CBFS-4)	Air bag/steering wheel loading
Ruptured spleen with extensive retroperitoneal hemorrhage	Serious (MLRQ-3)	Air bag/steering wheel loading
Ecchymosis of the posterior aspect of the heart	Serious (CCCH-3)	Seat back
Extensive subarachnoid hemorrhage	Serious (HUUB-3)	Seat back, hyperextension of head
Contusions over both eyelids	Minor (FLCO-1, FRCO-1)	Air bag
Contusion over the left anterior shoulder	Minor (SLCI-1)	Shoulder belt webbing
Abrasions with contusions to the underside area of the chin	Minor (FIAI-1, FICI-1)	Air bag
Abrasions of the anterior neck	Minor (NAAI-1)	Air bag
Abrasions with contusion of the left side of the neck	Minor (NLAI-1, NLCI-1)	Shoulder belt webbing
Contusion of the right anterior neck	Minor (NACI-1)	Air bag

DRIVER INJURIES (CONT'D.)

Injury	Severity (OIC/AIS)	Source
Contusions over the outer area of both breasts	Minor (CLCI-1, CRCI-1)	Air bag
4cm and 2cm lacerations of the right knee	Minor (KRLI-1, KRLI-1)	Knee bolster
Contusion over the left knee	Minor (KLCI-1)	Knee bolster

DRIVER KINEMATICS

The driver of the Dodge Shadow had her seat adjusted to a forward position and the tilt steering column set to the center adjustment point. She was wearing the active 3-point lap and shoulder belt system. Belt usage was determined from snag marks found on the belt webbing that were probably produced by a stick pin jewelry item that was fastened to the left side of her dress. The investigating police officer noted the belt fastened around the driver as he arrived on-scene within seconds of the crash. At impact with the utility pole, the driver was presumably slumped forward against, or within a close proximity of the steering wheel. She initiated a forward trajectory in response to the center frontal impact and engaged the deploying air bag, which resulted in contusions over both eyelids (AIS-1), abrasions with contusions to the underside area of the chin (AIS-1), abrasions of the anterior neck (AIS-1), contusions of the right anterior neck (AIS-1), and contusions over the outer area of both breasts (AIS-1). Her loading force was transmitted through the air bag and into the steering assembly which deformed the upper rim 0.25" forward and compressed the energy absorbing steering column 1.6" (shear capsule separation). As a result of her involvement with the deploying air bag and loading of the steering assembly, the driver sustained multiple bilateral rib fractures (AIS-4), a rupture of the abdominal aorta (AIS-5), and a ruptured spleen with extensive retroperitoneal hemorrhage (AIS-3). The driver loaded the shoulder belt webbing during her forward trajectory which contused the left anterior shoulder (AIS-1) and produced abrasions with contusions to the left side of her neck (AIS-1). The driver's knees loaded the knee bolster which produced a nylon stocking transfer to the left side of the bolster. She sustained two lacerations of the right knee (AIS-1) and a contusion over the left knee (AIS-1) from bolster contact.

The driver was subsequently thrust rearward into the seatback by the deploying air bag. As a result, the posterior aspect of her heart impacted the back of the chest, which resulted in ecchymosis of the posterior aspect of the heart (AIS-3). Her head probably rotated over the seatback which resulted in an extensive subarachnoid hemorrhage (AIS-3) from hyperextension of the head.

As the vehicle came to rest, the driver slumped to her right and probably snagged the belt webbing with the jewelry pin which ripped the front of her dress. She slid out of the shoulder belt webbing and came to rest with her head and torso resting on the right front seat cushion.

SELECTED PRINTS



Pre-Crash Trajectory Of The Dodge Shadow.

3



Vehicle Crosses Center Line And Departs The Left Road Edge.

4



Initial Impacts With The Concrete Fence Posts.

5



Struck Utility Pole.

6



Lookback View Of The Vehicle's Trajectory.

7



Frontal Damage To The Dodge Shadow.

8



Closeup View Of The Center Front Utility Pole Impact Damage.

9



Left Front Three-Quarter View.

10



Closeup View Of The Second Fence Post Impact Damage To The  
Left Bumper Corner Area.

11



Fence Post Sideswipe Damage To The Left Front Fender Area.

12



Left Perpendicular View Of The Frontal Area Showing  
The Extent Of Bumper Crush.

13



Right Rear Three-Quarter View.

14



Right Side View Of The Dodge Shadow.

15



Right Front Three-Quarter View.

16



Angular View Of The Utility Pole Impact Damage.

17



Perpendicular View From The Right Corner Showing The Extent of Frontal Crush.

18



Overall Interior View Of The Driver's Contact Point And Deployed Air Bag.

19



20



Left Knee Nylon Stocking Transfer To The Fuse Box Cover In The Knee Bolster.

21



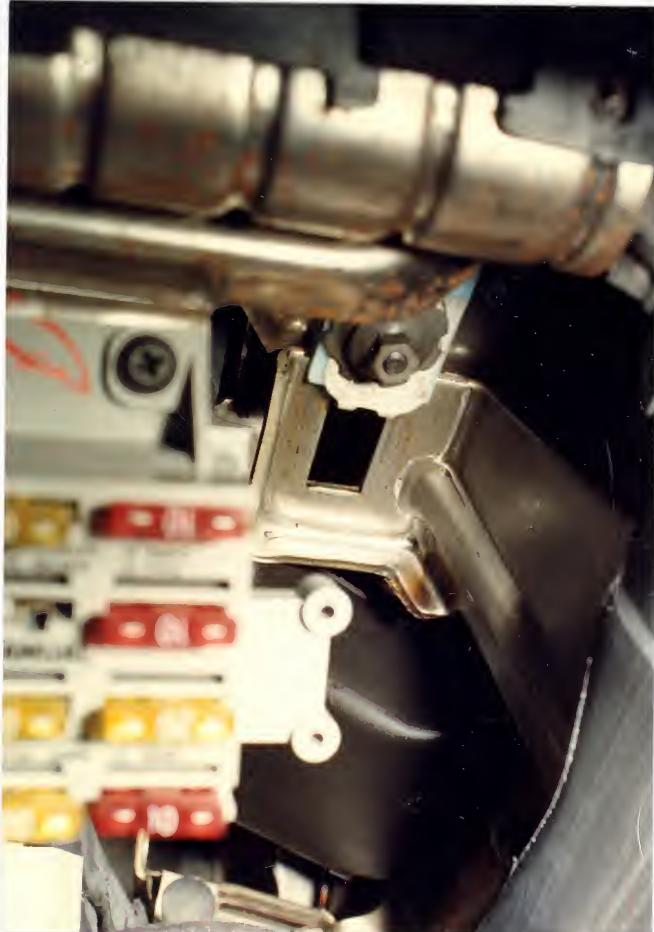
Steel Reinforcement To The Knee Bolster.

22



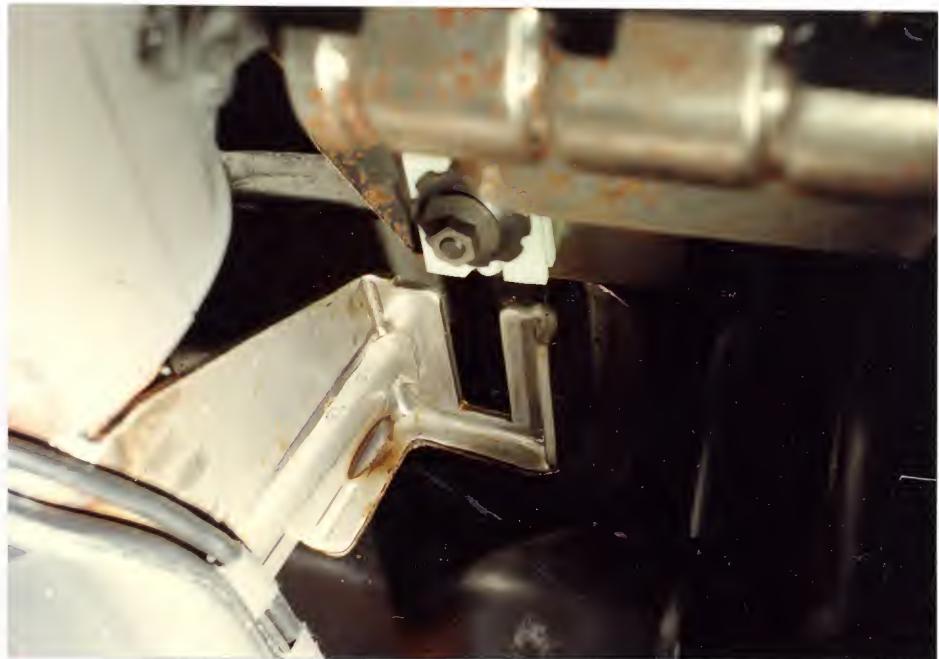
Perpendicular View Of The Steering Assembly And Deployed Air Bag.

23



Left Steering Column Shear Capsule, 1.375" of Compression.

24



Right Steering Column Shear Capsule, 1.625" of Compression.

25



Driver's Seat And Active 3-point Belt System.

26



Snags On Outside Surface Of Belt Webbing.

27



Driver Came To Rest Slumped Across Right Front Seat Cushion.

28



Dress Worn By The Driver At The Time Of The Crash.

29



Vertical Tear To The Top Of The Dress.

30



Torn Right Side Of Dress.

31



Torn Left Side Of Dress.

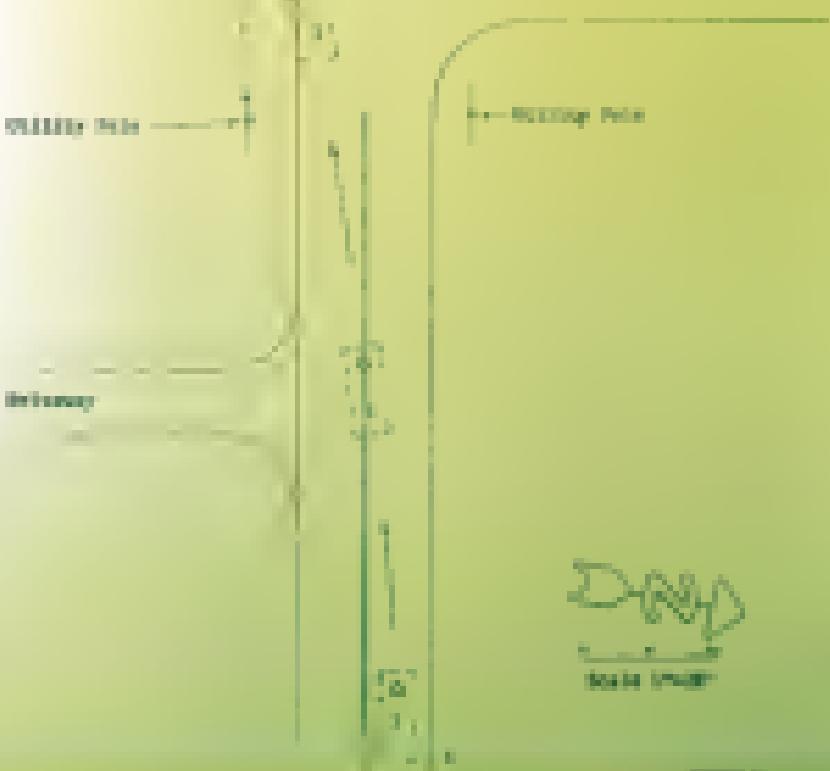
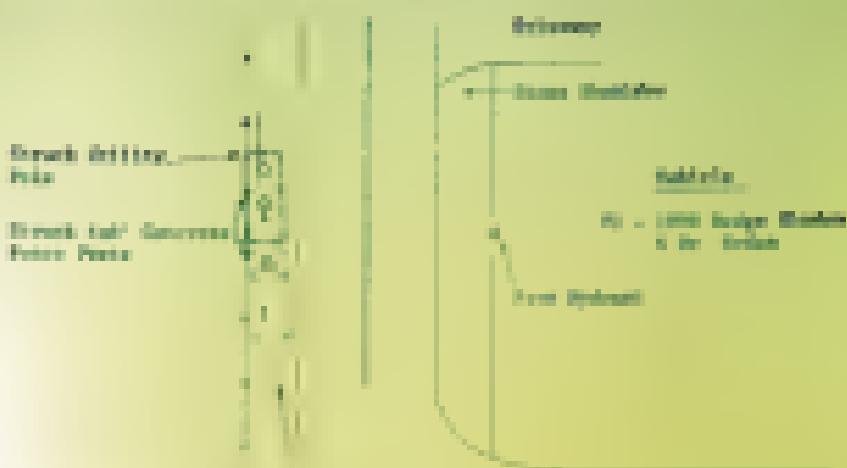
## SLIDE INDEX

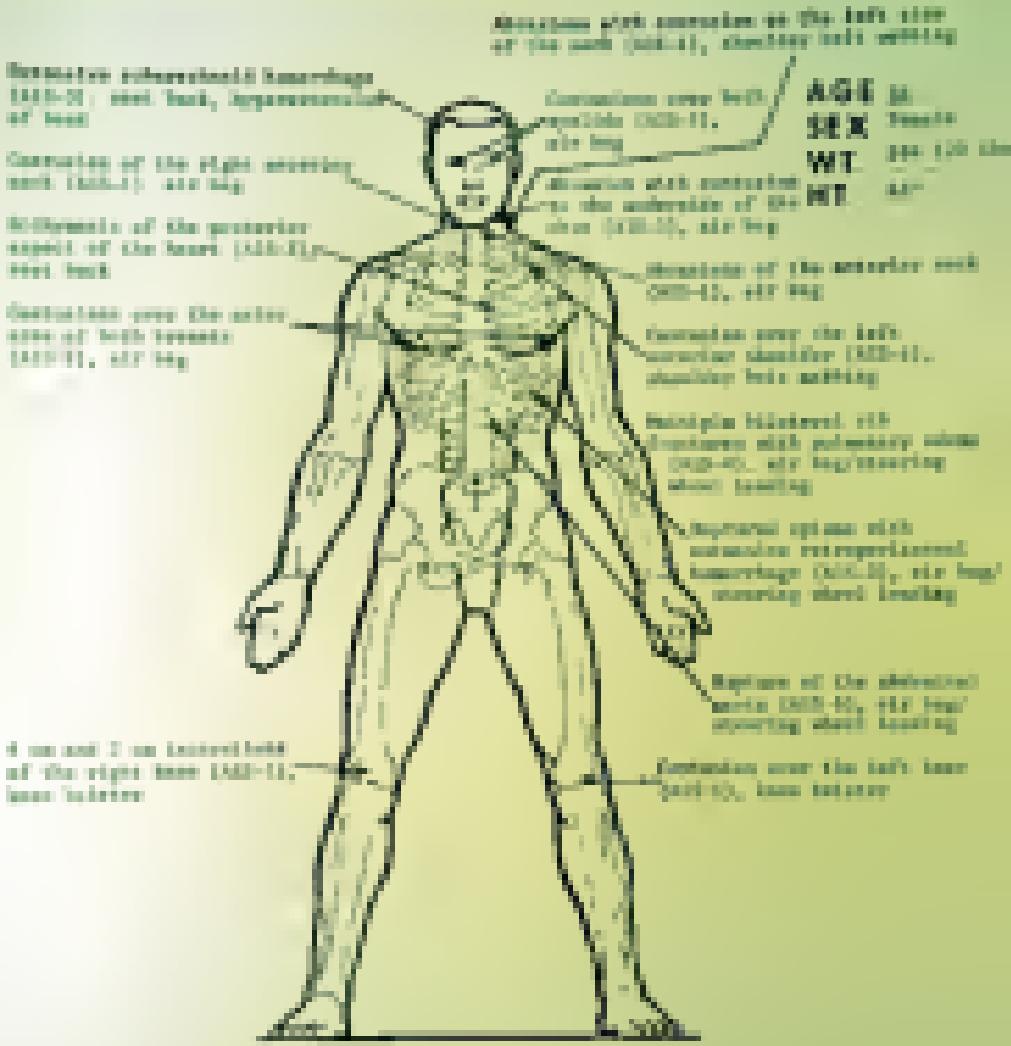
<u>Slide No(s).</u>	<u>Description</u>
1	Accident schematic
2	Driver injury mannequin
3-8	Pre-crash trajectory of the Dodge Shadow
9	Struck fence posts
10,11	Perpendicular views of the struck posts
12	Struck utility pole
13	Lookback view of vehicle's trajectory
14	Frontal view of the Dodge Shadow
15	Closeup view of the utility pole damage
16	Left front three-quarter view
17	Angular view showing the extent of crush from the pole impact
18	Second fence post contact damage to bumper facia
19,20	Initial fence post sideswipe damage on left front fender
21,22	Rear three-quarter views
23	Right side view
24	Perpendicular view showing the extent of frontal crush
25	Right front three-quarter view
26	Vehicle's identification label affixed to left door
27	Vehicle's odometer reading
28	Overall interior view from the left door area
29	Deployed driver's air bag
30	Air bag venting ports and identification numbers

SLIDE INDEX (CONT'D.)

<u>Slide No(s).</u>	<u>Description</u>
31	Upper air bag module flap
32	Lower air bag module flap
33	Left steering column shear capsule
34	Right steering column shear capsule
35, 36	Driver's left knee contact (nylon stocking transfer) to the fuse box cover of the knee bolster
37	Driver's seat and active 3-point restraint system
38, 39	Snags on outer aspect of shoulder belt webbing
40	Driver's final rest position lying across interior onto right front seat cushion

Anterior Relationship  
Relationships from the 90-10







CA 9112 #3



CA9112 #4



CA9112 #5



CA 9112 #8



CA 9112 #7



CA9112 #8



CA9112 #9



CA9112 #10



CA 9112 #11



CA9112 #12



CA9112 #13



CA 9112 #14



CA9112 #15



GA 9112 #18



CA9112 #17



CA9112 #18



CA9112 #19



CA9112 #20



CA9112 #21



GA 9112 #22



CA9112 #23



CA 9112 #24



CA 9112 #25

CA9112 #26



CA9112 #27



**CA 9112 #28**  
**Best Available**



CA9112 #29



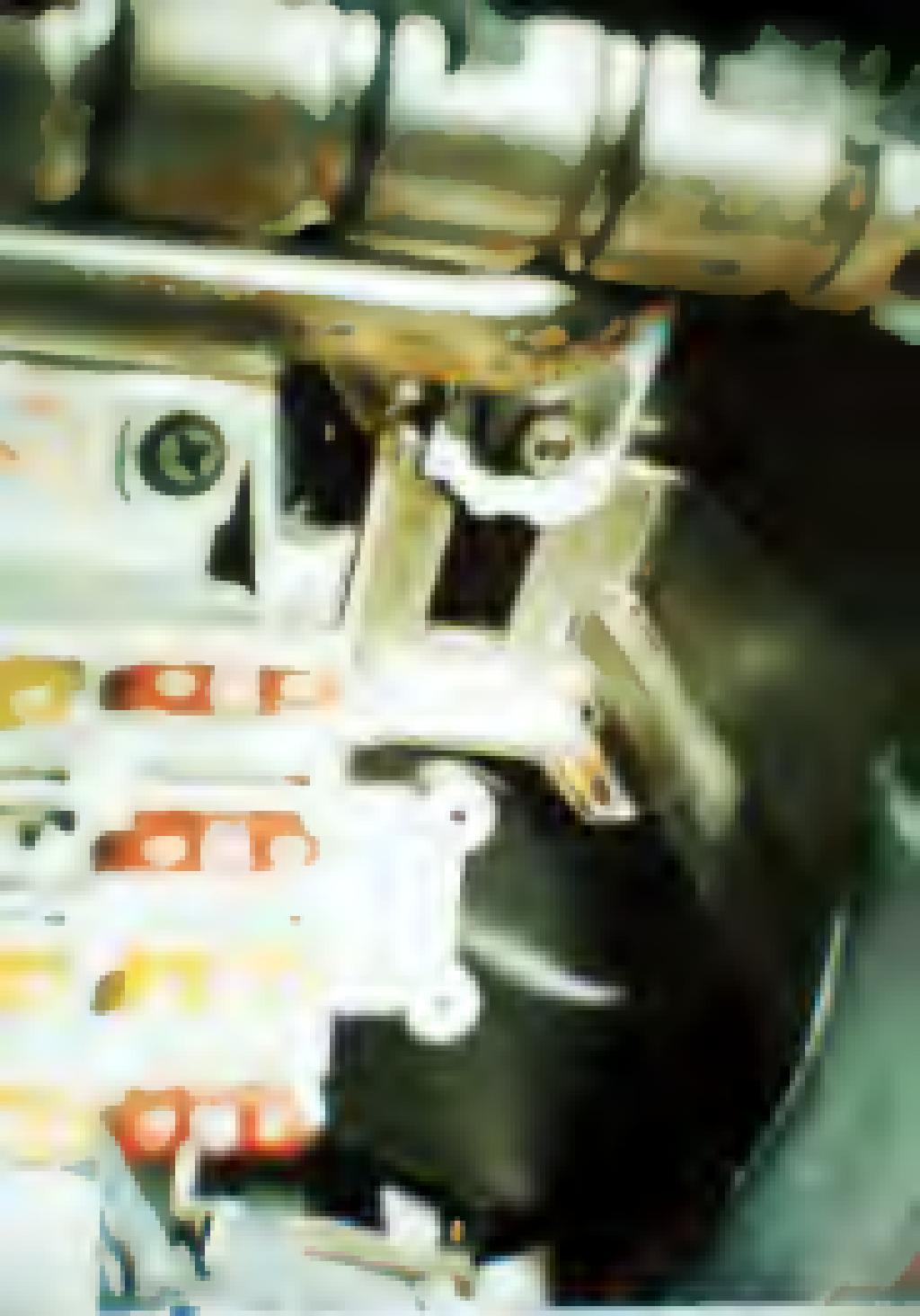
CA9112 #30



CA9112 #31



CA9112 #32  
Best Available



Using Columns - Page 1 of 1 | Previous | Next | Last | Home | Help | Log Out

CA9112 #33



CA9112 #34



CA 9112 #36  
Best Available



CA9112 #36  
Best Available



CA 9112 #37



CA9112 #38



CA9112 \$39



CA 9112 \$40

APPENDIX A

Police Accident Report

SEND  
COMPLETED  
FORMS  
TO:

COMMONWEALTH OF  
POLICE ACCIDENT REPORT

BEST AVAILABLE COPY

FAT

REPORTABLE

NON-  
REPORTABLE

1 INCIDENT NUMBER		2 AGENCY NAME		3 STATION/PRECINCT											
		State Police													
4. INVESTIGATOR NAME		BADGE NO.		5. PATROL ZONE											
Tpr.				22											
6. REPORT DATE		BADGE NO.		7. DATE APPROVED											
8. TOTAL UNITS 1		10. NUMBER KILLED		11. NUMBER INJURED 0											
14. PENNDOT PROPERTY Y ①		15. HAZARDOUS MATERIALS Y ①		16. PRIVATE PROPERTY CLOSED TO PUBLIC Y ①											
17. DESCRIPTION OF DAMAGED PROPERTY Wooden Fence,		DAMAGED		PHONE											
ACCIDENT TIME AND LOCATION		18. ACCIDENT DATE 91		19. DAY OF WEEK											
21. COUNTY		CODE 15		22. MUNICIPALITY Twp.											
PRINCIPAL ROAD		23. ROUTE NO / STREET NAME S.R. Pa.		24. SPEED LIMIT 35 mph.											
INTERSECTING RD.		26. ROUTE NO / STREET NAME		27. SPEED LIMIT											
NOT AT INTERSECTION		29. NEAREST REFERENCE POINT No S.R. listing		30. DIRECTION FROM ACCIDENT SITE N S O W											
31. DISTANCE FROM SITE FT. 1/10		MI.		32. DISTANCE WAS: <input type="checkbox"/> MEASURED <input checked="" type="checkbox"/> ESTIMATED											
34. CONSTRUCTION ZONE 0		35. TRAFFIC CONTROL DEVICE PRIN RD INT. RD. 0		36. DRIVER NUMBER 37. STATE Pa 38. CLASS 1 39. RESTRICTIONS - 40. EXPIRED Y ① 41. SEX F 42. DOB											
43. DRIVER		ADDRESS		ZIP CODE unk											
44. OWNER		ADDRESS		ZIP CODE											
Same as driver,				PHONE NUMBER											
45. LEGALLY PARKED <input type="checkbox"/>		46. VIN 1B3XP48K5L		47. TITLE NO. 48. STATE Pa 49. REG PLATE											
50. YEAR 1990		51. MAKE Dodge		52. MODEL (NOT BODY TYPE) Shadow 53. TOWED TO Towing											
55. INSURANCE CO The Company		56. INS. CO. CODE		57. POLICY NO. 58. TOWED BY Wrecker of same											
59. TRAILER (MAKE, MODEL, TYPE)		60. TRAILER PLATE NO.		61. OWNER OF TRAILER ADDRESS ZIP CODE											
62. DRIVER NUMBER		37. STATE Pa 38. CLASS 1 39. RESTRICTIONS - 40. EXPIRED Y / N 41. SEX F 42. DOB		63. DRIVER ADDRESS ZIP CODE											
64. OWNER		ADDRESS		ZIP CODE											
65. LEGALLY PARKED <input type="checkbox"/>		66. VIN		67. TITLE NO. 68. STATE Pa 69. REG PLATE											
70. YEAR		71. MAKE		72. MODEL (NOT BODY TYPE) 73. TOWED TO											
75. INSURANCE CO		76. INS. CO. CODE		77. POLICY NO. 78. TOWED BY											
79. TRAILER (MAKE, MODEL, TYPE)		80. TRAILER PLATE NO.		81. OWNER OF TRAILER ADDRESS ZIP CODE											
82. RESPONDING EMS AGENCY Fire Co. (Ambulance)		MEDICAL FACILITY Hospital													
63. USE CODES FROM OVERLAY SHEET 1 TO RESPOND TO BLOCKS A THROUGH M OF THIS SECTION.															
A	B	C	D	E	F	G	H	I	J	K	L	M			
1	7	F	36	3	1	1	Opr.	#1		1	2	8	C	6	1

INCIDENT NO: [REDACTED]

BEST AVAILABLE COPY

## POLICE ACCIDENT REPORT

ACCIDENT DATE: 7/91

64. USE OVERLAY SHEET 2 TO  
COMPLETE BLOCKS  
0 THROUGH X

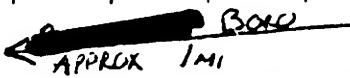
UNIT 1

1 4 0 - 1 12 0 9 9 3 0 0

UNIT 2

0 P O R S T U V W X

66. DIAGRAM



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SEND [REDACTED] OF TRANSPORTATION  
COMPLETED CENTER FOR HIGHWAY SAFETY  
FORMS  
TO: [REDACTED]

**COMMONWEALTH OF MASSACHUSETTS  
ACCIDENT REPORT SUPPLEMENTAL FORM**

BEST AVAILABLE COPY

PRINTED USE ONLY

1. INCIDENT NUMBER		2. AGENCY NAME			3. STATION/PRECINCT				
4. INVESTIGATOR NAME		5. BADGE NO.			6. PATROL ZONE				
7. REPORT DATE		8. APPROVED BY		BADGE NO.		9. DATE APPROVED			
ACCIDENT TIME AND LOCATION		10. ACCIDENT DATE MM/DD/YY		11. DAY OF WEEK		12. TIME OF DAY			
13. COUNTY		CODE		14. MUNICIPALITY		CODE			
15. NAMES OF ALL OPERATORS	(1)			(3)					
	(2)			(4)					
COMPLETE ONLY THE INFORMATION THAT HAS CHANGED SINCE ORIGINAL REPORT									
U N I T N O.	16. DRIVER NUMBER		17. STATE	18. CLASS	19. RESTRICTIONS	20. EXPIRED	Y N	21. SEX	22. DOB
	23. DRIVER		ADDRESS				PHONE NUMBER		
	24. OWNER		ADDRESS				PHONE NUMBER		
	25. LEGALLY PARKED <input type="checkbox"/>		26. VIN	27. TITLE NO.			28. STATE	29. PLATE NO.	
	30. YEAR	31. MAKE		32. MODEL (NOT BODY TYPE)			33. TOWED TO		
	34. INSURANCE CO.		35. INS. CO CODE		36. POLICY NO.		37. TOWED BY		
	38. TRAILER (MAKE, MODEL, TYPE)				39. TRAILER PLATE NO.			40. STATE	
	41. OWNER OF TRAILER					42. ADDRESS			43. PHONE

## **MANUAL FIVE (CONT'D)**

completely smoke filled and all the doors were locked. Tpr. [REDACTED] smashed out the rear drivers' side window with his flashlight to gain access into the car. After opening the drivers' side door, we observed a female operator slumped over on the passenger seat, who was breathing, but not moving. I immediately contacted and informed [REDACTED] desk personnel, who was Tpr. [REDACTED] at the time, that there was a car accident and to send an ambulance and also fire units because the car was smoking. Within ten minutes, the ambulance and fire personnel arrived at the scene.

No advance accident personnel were called to the scene to take measurements at the time of the accident, due the fact that the condition of opr. #1 did not appear to be fatal.

This officer arrived at ██████████ Hospital at approx., 0110 hrs., to check on the condition of opr #1. I was informed by the hospital personnel that ██████████ was under-going surgery at the time and was unable to be interviewed.

NARRATIVE CONTINUED ON BACK IN BLOCK 44 .

**41. USE CODES FROM OVERLAY SHEET 1 TO RESPOND TO BLOCKS A THROUGH M OF THIS SECTION.**

INCIDENT NO.: [REDACTED]

## POLICE ACCIDENT REPORT SUPPLEMENTAL

BEST AVAILABLE COPY

INCIDENT DATE: [REDACTED] 91

42. USE OVERLAY SHEET 2 TO  
COMPLETE BLOCKS  
O THROUGH X

UNIT 1

UNIT 2

O P Q R S T U V W X

TAF

ARDOUS

MATERIALS

PLACARD

NUMBERS

UNIT 1

UNIT 2

44. NARRATIVE (OPTIONAL)

This officer called the hospital at approx., 0625 hrs., prior to getting off-duty, at which time I was informed that Dr. [REDACTED] of [REDACTED] Hospital had pronounced [REDACTED] dead at 0323 hrs.

[REDACTED] was issued to opr. #1 brother: [REDACTED] at the hospital. [REDACTED] was also at the accident scene, at time he took his sisters' pocketbook and other personal items. The drivers' license of the deceased has not yet been obtained. The owner of the wooden fence will receive an accident notice in the mail.

Assisted by: [REDACTED] or [REDACTED] Vol. Fire Co. (Ambulance) and [REDACTED] Fire Co.

This investigation will continue until the cause of death can be determined.

Unit scope message [REDACTED] was sent by this station as required, to the [REDACTED] Patrol.

The National Safety Transportation Board will be notified of the airbag deployment, as directed by [REDACTED]

45. DESCRIBE VIOLATIONS

46. SECTION NUMBERS (ONLY IF CHARGED)

47. CITATION REPORT NO.(S)

UNIT 1

UNIT 2

USE CODES ON  
OVERLAY SHEET  
FOR BLOCKS

49 - 51

48. NAME

49. PROBABLE USE

50. TYPE TEST

51. RESULTS

52. INVESTIGATION  
COMPLETE?

UNIT 1

UNIT 2

0. \_\_\_\_ %

0. \_\_\_\_ %

NO

AA 45 (1 E8)

[REDACTED] OF [REDACTED]  
DEPARTMENT OF TRANSPORTATION

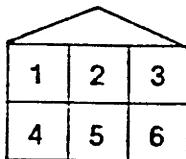
Police Accident Report  
Overlay Sheet 1

## 63. UNIT NUMBER — BLOCK A

- 1 — UNIT 1
- 2 — UNIT 2

## 63. SEAT POSITION — BLOCK B

- 1 — DRIVER
- 2 — MIDDLE FRONT
- 3 — RIGHT FRONT
- 4 — LEFT REAR
- 5 — MIDDLE REAR
- 6 — RIGHT REAR
- 7 — PEDESTRIAN
- 8 — OTHER SEAT POSITION
- 9 — UNKNOWN SEAT POSITION



## 63. SEX — BLOCK C

- M — MALE
- F — FEMALE
- U — UNKNOWN

## 63. AGE — BLOCK D

- CODE ACTUAL AGE EXCEPT FOR
- I — FOR INFANTS UP TO THE AGE OF 2
  - E — AGE 88 OR GREATER
  - U — UNKNOWN

## 63. ACTIVE RESTRAINT TYPE — BLOCK E

- 0 — NONE OR NOT APPLICABLE
- 1 — SHOULDER HARNESS ONLY
- 2 — SEAT BELT ONLY
- 3 — COMBINATION (HARNESS & BELT)
- 4 — CHILD RESTRAINT DEVICE
- 7 — HELMET
- 8 — OTHER
- 9 — UNKNOWN

## 63. ACTIVE RESTRAINT USAGE — BLOCK F

- 0 — NOT APPLICABLE
- 1 — IN USE
- 2 — NOT IN USE
- 9 — UNKNOWN IF USED

## 63. PASSIVE RESTRAINT TYPE — BLOCK G

- 0 — NONE OR NOT APPLICABLE
- 1 — AIRBAG DEPLOYED
- 2 — AIRBAG NOT DEPLOYED
- 3 — AUTOMATIC SEAT BELT
- 8 — OTHER
- 9 — UNKNOWN

## 63. INJURY SEVERITY — BLOCK H

- 0 — NO INJURY
- 1 — DEATH
- MAJOR INJURY
- MODERATE INJURY
- 4 — MINOR INJURY
- 5 — UNKNOWN SEVERITY

## 63. TYPE OF INJURY — BLOCK I

- 0 — NO INJURY
- 1 — AMPUTATION
- 2 — BLEEDING WOUND
- 3 — BROKEN BONES
- 4 — DISTORTED MEMBER
- 5 — BRUISES/ABRASIONS
- 6 — BURNS
- 7 — SWELLING
- 8 — LIMPING
- 9 — COMPLAINT OF PAIN
- 97 — OTHER INCAPACITATING
- 98 — OTHER NON INCAPACITATING
- 99 — UNKNOWN

## 63. AREA OF APPARENT INJURY — BLOCK J

- 0 — NO INJURY
- 1 — FACE
- 2 — HEAD
- 3 — NECK
- 4 — BACK
- 5 — ARMS
- 6 — LEGS
- 7 — CHEST/STOMACH
- 8 — INTERNAL
- 9 — ENTIRE BODY
- 98 — OTHER AREAS
- 99 — UNKNOWN

## 63. INJURY INFORMATION SOURCE — BLOCK K

- N — NOT APPLICABLE
- A — OBSERVATION OF OFFICER
- B — STATEMENT FROM INDIVIDUAL
- C — MEDICAL/PARAMEDICAL PERSONNEL

## 63. EJECTION/EXTRICATION — BLOCK L

- 0 — NOT APPLICABLE
- 1 — TOTALLY EJECTED
- 2 — PARTIALLY EJECTED
- 3 — PARTIAL EJECTION REQUIRING EXTRICATION
- 4 — EXTRICATION BY UNKNOWN PERSONS
- 5 — EXTRICATION — TWO OR MORE TYPES
- 6 — EXTRICATION BY AMBULANCE/RESCUE PERSONNEL
- 7 — EXTRICATION BY POLICE
- 8 — EXTRICATION BY SELF
- 9 — UNKNOWN EJECTION/EXTRICATION

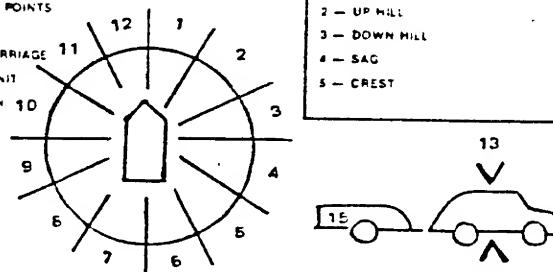
## 63. INJURY TRANSPORTATION — BLOCK M

- 0 — NOT APPLICABLE
- 1 — AMBULANCE
- 2 — HELICOPTER
- 3 — FIRE RESCUE VEHICLE
- 4 — PRIVATE VEHICLE
- 5 — POLICE VEHICLE
- 8 — OTHER
- 9 — UNKNOWN

Streets, mileposts, or SR/Segment Markers. Do not use Utility Poles, House Numbers, or old Station Markers.

**Accident Diagram** — The diagram is a visual representation of the accident location and the events that occurred. Show the movements of the vehicle(s) involved using a solid line with arrows.

## POLICE ACCIDENT REPORT - OVERLAY SHEET 2

<b>64. DRIVER PRESENCE - BLOCK O</b>		<b>BUSES</b> 30 - SCHOOL BUS 31 - CROSS COUNTRY INTERCITY BUS 32 - TRANSIT BUS 33 - OTHER BUS 35 - UNKNOWN BUS TYPE	<b>MEDIUM/HEAVY TRUCKS</b> 70 - SINGLE UNIT STRAIGHT TRUCK (10,000 GVWR 19,500) 71 - SINGLE UNIT STRAIGHT TRUCK (19,500 GVWR 26,000) 72 - SINGLE UNIT STRAIGHT TRUCK (OVER 26,000) 73 - MEDIUM/HEAVY TRUCK BASED MOTORHOME 74 - TRUCK TRACTOR
<b>64. BODYTYPES - BLOCK P</b>		<b>VANS</b> 40 - VAN 41 - VAN COMMERCIAL CUTAWAY 42 - VAN BASED MOTORHOME 43 - OTHER VAN TYPE 45 - UNKNOWN VAN TYPE	<b>75 - UNKNOWN IF SINGLE UNIT OR COMBINATION UNIT (GVWR 26,000) 76 - UNKNOWN IF SINGLE UNIT OR COMBINATION UNIT (GVWR 26,000) 77 - CAMPER OR MOTORHOME UNKNOWN TRUCK TYPE 78 - SINGLE UNIT STRAIGHT TRUCK (GVWR UNKNOWN) 79 - UNKNOWN TRUCK TYPE</b>
<b>AUTOMOBILES</b>		<b>LIGHT TRUCKS (GVWR &lt; 10,000)</b> 50 - PICKUP 51 - PICKUP WITH SLIDE IN CAMPER 52 - PICKUP BASED MOTORHOME 53 - CAB CHASSIS BASED 54 - TRUCK BASED PANEL 55 - TRUCK BASED STATION WAGON 56 - TRUCK BASED UTILITY 58 - OTHER LIGHT TRUCK 59 - UNKNOWN LIGHT TRUCK TYPE	<b>OTHER MOTORIZED VEHICLES</b> 80 - SNOWMOBILES 81 - FARM EQUIPMENT 82 - ATV 83 - CONSTRUCTION EQUIPMENT 84 - OTHER UNSPECIFIED VEHICLE 85 - UNKNOWN OTHERS
		<b>67 - STATIONWAGON BASE BODY TYPE UNKNOWN 68 - UTILITY, BASE BODY TYPE UNKNOWN 69 - UNKNOWN LIGHT TRUCK</b>	<b>NON-MOTORIZED VEHICLES</b> 90 - UNICYCLE, BICYCLE, TRIKE 91 - OTHER PEDALCYCLE (BIG WHEEL) 92 - UNKNOWN PEDALCYCLE 93 - HORSE AND BUGGY 94 - HORSE AND RIDER
<b>MOTORCYCLES</b>			<b>TRACK VEHICLES</b> 95 - TRAIN 96 - TROLLEY <b>IF NOTHING ELSE</b> 97 - OTHER 98 - UNKNOWN
<b>64. SPECIAL USAGE - BLOCK Q</b>		<b>64. VEHICLE OWNERSHIP - BLOCK S</b> 1 - PRIVATE VEHICLE OWNED BY DRIVER 2 - PRIVATE VEHICLE OWNED BY ANOTHER 3 - RENTED VEHICLE 4 - STATE POLICE VEHICLE 5 - PEWDOT VEHICLE 6 - OTHER COMMONWEALTH VEHICLE 7 - MUNICIPAL POLICE VEHICLE 8 - OTHER MUNICIPAL GOVT VEHICLE 9 - FEDERAL GOVERNMENT VEHICLE 10 - COMMERCIAL VEHICLE 98 - OTHER 99 - UNKNOWN	<b>64. VEHICLE STATUS - BLOCK U</b> 0 - NOT APPLICABLE 1 - LEGALLY PARKED 2 - ILLEGALLY PARKED 3 - HIT AND RUN 4 - DISABLED FROM PREVIOUS ACCIDENT
			<b>64. HAZARDOUS MATERIALS - BLOCK X</b> 00 - NOT APPLICABLE 01 - NON FLAMMABLE GAS 02 - COMBUSTIBLE 03 - ORGANIC PEROXIDE 04 - CORROSIVE 05 - EXPLOSIVE "A" 06 - OXYGEN 07 - POISON 08 - EXPLOSIVE "B" 09 - CHLORINE 10 - OXIDIZER 11 - POISON GAS 12 - FUEL OIL 13 - DANGEROUS 14 - RADIOACTIVE 15 - FLAMMABLE SOLID 16 - FLAMMABLE 17 - FLAMMABLE GAS 18 - FLAMMABLE SOLID 19 - GASOLINE 20 - BLASTING AGENTS 21 - RESIDUE 98 - OTHER 99 - UNKNOWN
<b>64. NO OF AXLES - BLOCK R</b>		<b>64. INITIAL IMPACT POINT - BLOCK T</b> 0 - NO IMPACT 1 - 12 CLOCK POINTS 13 - TOP 14 - UNDERCARRIAGE 15 - TOWED UNIT 99 - UNKNOWN 	<b>64. TRAVEL SPEED - BLOCK V</b> 0 - STOPPED OR PARKED 1 - 97 ACTUAL OR ESTIMATED SPEED 98 - 86 MPH OR GREATER 99 - UNKNOWN
			<b>64. VEHICLE GRADIENT - BLOCK W</b> 1 - LEVEL ROADWAY 2 - UP HILL 3 - DOWN HILL 4 - SAG 5 - CREST
<b>77. PROBABLE USE (ALCOHOL OR DRUGS)</b>		<b>78. TYPE TEST</b> 0 - NOT APPLICABLE / NO TEST GIVEN 1 - BLOOD 3 - OTHER DRUGS 4 - BOTH ALCOHOL AND DRUGS 9 - UNKNOWN	<b>79. RESULTS (ALCOHOL TEST)</b> 2 - BREATH 3 - URINE 4 - TEST REFUSED 8 - OTHER 9 - UNKNOWN
			<b>CODE ACTUAL TEST RESULT</b> 97 - NO TEST GIVEN 98 - REFUSED 99 - RESULTS UNKNOWN

REMOVE THIS STUB (AND ATTACHED CARBON PAPERS) BEFORE COMPLETING REVERSE SIDE

APPENDIX B

CRASHPC Output

(Damage and Trajectory Algorithm)

## SUMMARY OF CRASHPC RESULTS (USING SPINOUT)

91-12

IMPACT SPEED (DAMAGE AND SPINOUT)	VEH #1	TOTAL (MPH)	LONG. (MPH),	LAT. (MPH)
	VEH #2	16.0	16.0	.0
		.0	.0	.0
SPEED CHANGE (DAMAGE)	VEH #1	TOTAL (MPH)	LONG. (MPH)	LAT. (MPH)
	VEH #2	14.4	-14.4	.0
		.0	.0	.0

ENERGY DISSIPATED BY DAMAGE VEH#1: 19655.9 FT-LB VEH#2: .0 FT-LB

SUMMARY OF DAMAGE DATA  
VEHICLE # 1(\* INDICATES DEFAULT VALUE)  
VEHICLE # 2

TYPE-----CATEGORY 2  
 STIFFNESS---CATEGORY 9  
 WEIGHT-----2762.0 LBS.  
 CDC-----12FYEW2  
 L-----48.0 IN.  
 C1-----.3 IN.  
 C2-----5.8 IN.  
 C3-----13.3 IN.  
 C4-----7.4 IN.  
 C5-----2.3 IN.  
 C6-----.0 IN.  
 D------5.0  
 RHO-----1.00 \*  
 ANG-----.0 DEG.  
 D'------7.8 IN.

TYPE-----CATEGORY 11  
 STIFFNESS---CATEGORY 0  
 WEIGHT-----1000000.0 LBS. \*  
 CDC-----BARRIER  
 L-----.0 IN. \*  
 C1-----.0 IN. \*  
 C2-----.0 IN. \*  
 C3-----.0 IN. \*  
 C4-----.0 IN. \*  
 C5-----.0 IN. \*  
 C6-----.0 IN. \*  
 D-----.0 \*  
 RHO-----1.00 \*  
 ANG-----.0 DEG. \*  
 D'-----.0 IN.

## SCENE INFORMATION

	VEHICLE # 1	VEHICLE # 2
IMPACT X-POSITION	-6.30 FT.	4.20 FT.
IMPACT Y-POSITION	.30 FT.	.00 FT.
IMPACT HEADING ANGLE	.00 DEG.	180.00 DEG.
REST X-POSITION	-5.30 FT.	4.20 FT.
REST Y-POSITION	.30 FT.	.00 FT.
REST HEADING ANGLE	.00 DEG.	180.00 DEG.
END-OF-ROTATION X-POSITION	-6.30 FT.	
END-OF-ROTATION Y-POSITION	.30 FT.	
END-OF-ROTATION HEADING ANGLE	.00 DEG.	
DIRECTION OF ROTATION	NONE	NONE
AMOUNT OF ROTATION	<360	<360

## COLLISION CONDITIONS

VEHICLE # 1	VEHICLE # 2
XC10' = -6.3 FT.	XC20' = 4.2 FT.
YC10' = .3 FT.	YC20' = .0 FT.
PSI10 = .0 DEG.	PSI20 = 180.0 DEG.
PSI1DO = .0 DEG/SEC	PSI2DO = .0 DEG/SEC
BETA1 = .0 DEG.	BETA2 = .0 DEG.

## SEPARATION CONDITIONS (USING SPINOUT)

VEHICLE # 1	VEHICLE #2
US1 = 1.6 MPH	US2 = .0 MPH
VS1 = .0 MPH	VS2 = .0 MPH
PSISD1 = .0 DEG/SEC	PSISD2 = .0 DEG/SEC

## DIMENSIONS AND INERTIAL PROPERTIES

A1 = 46.3 IN.	A2 = 50.0 IN.
B1 = 50.1 IN.	B2 = 50.0 IN.
TR1 = 54.6 IN.	TR2 = 50.0 IN.
I1 = 21192.6 LB-SEC**2-IN	I2 = 2600104000.0 LB-SEC**2-IN
M1 = 7.181 LB-SEC**2/IN	M2 = 2600.104 LB-SEC**2/IN
XF1 = 83.3 IN.	XF2 = 50.0 IN.
XR1 = -91.6 IN.	XR2 = -50.0 IN.
YS1 = 33.6 IN.	YS2 = 50.0 IN.

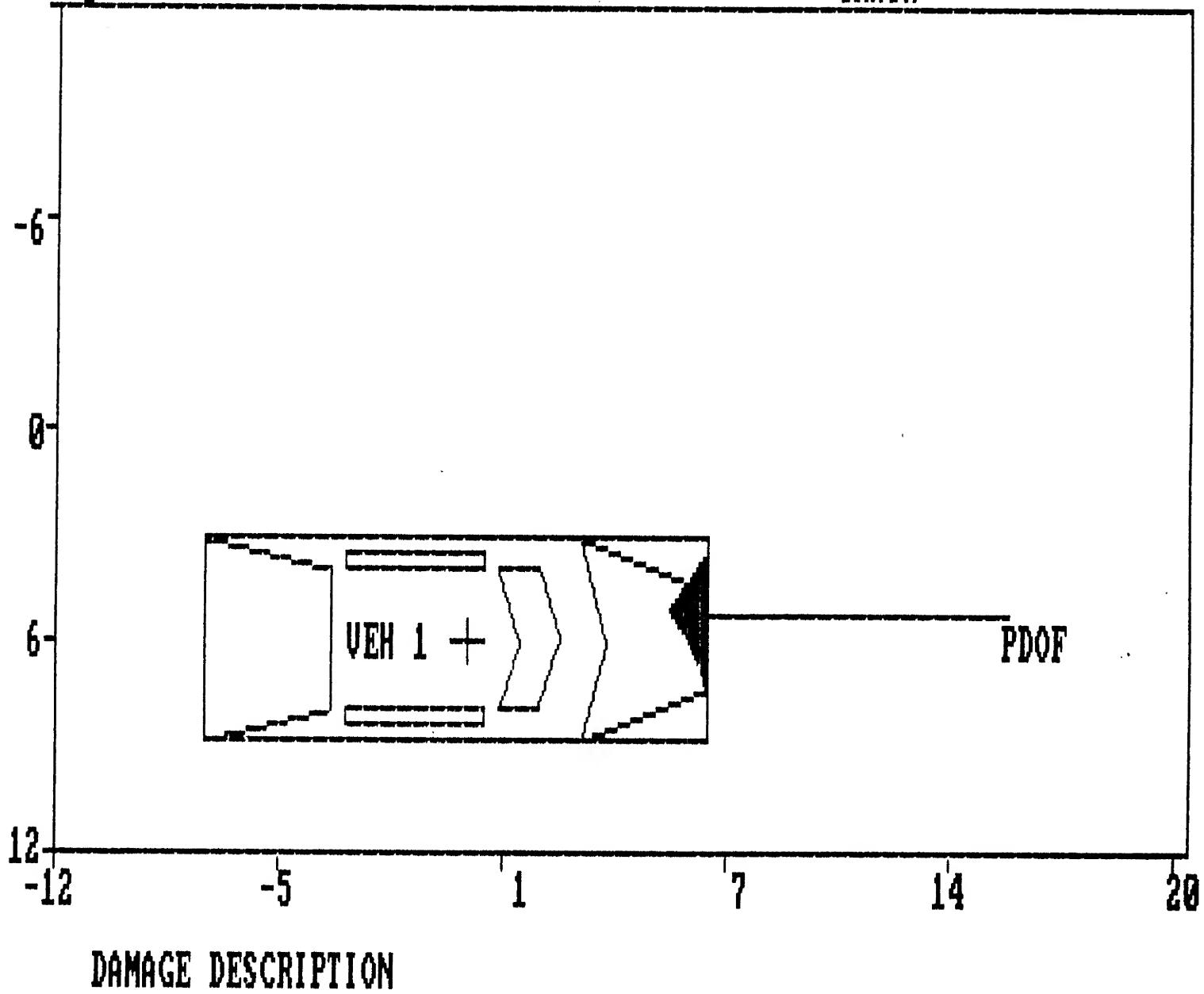
## ROLLING RESISTANCE

VEHICLE # 1	VEHICLE # 2
LF----- .30	LF----- .00
RF----- .30	RF----- .00
LR----- .02	LR----- .00
RR----- .02	RR----- .00
MU----- .55	

Printing Picture:

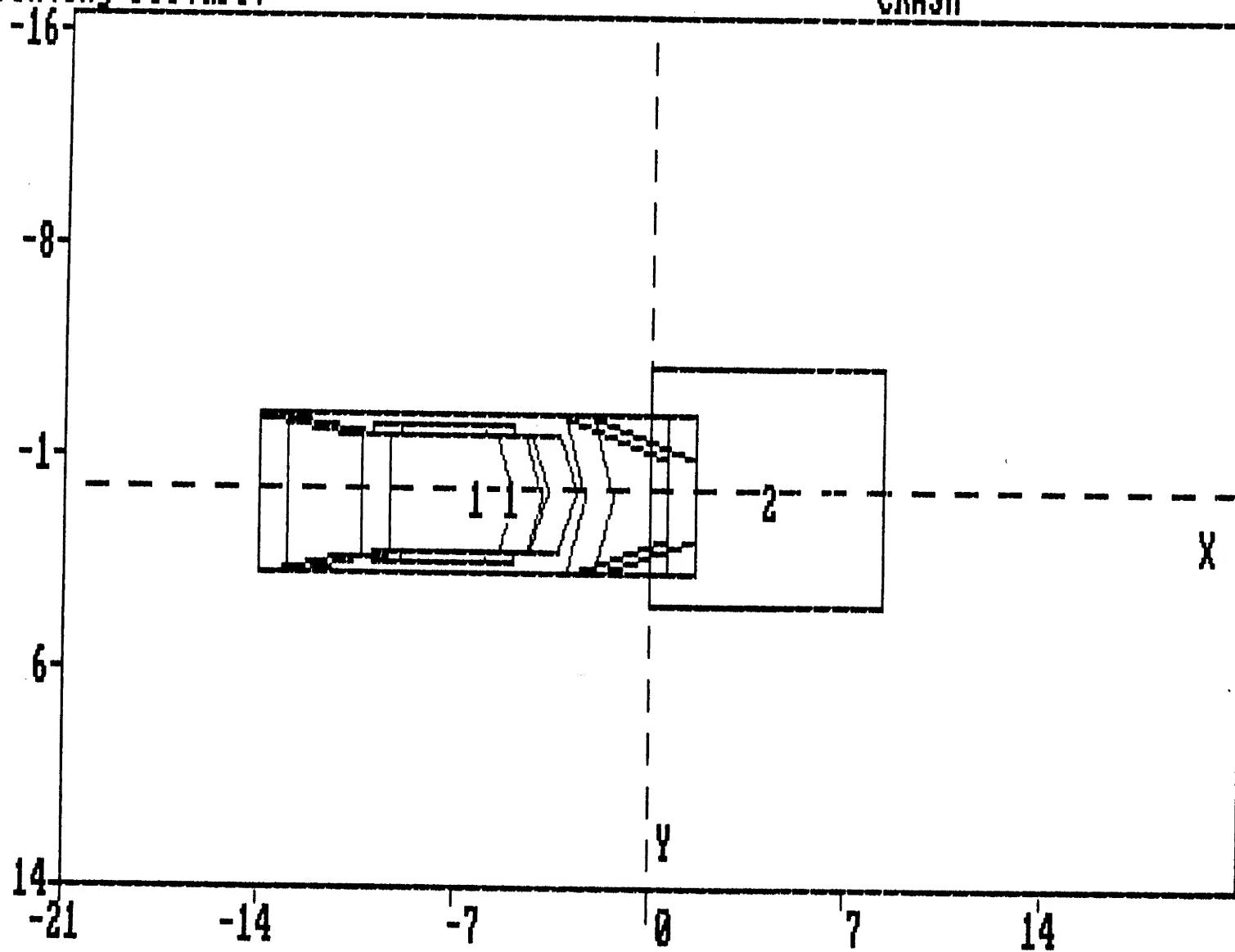
CRASH

42



Printing Picture:

CRASH



SCENE DESCRIPTION

APPENDIX C

Air Bag Supplement

## ACCIDENT SUMMARY

ACCIDENT DATE 1/91POLICE INVESTIGATED (1,2,9)\*  
STATE POLICECity 6692 County 029

## GENERAL LOCALITY

- (1) Freeway, Limited Access
- (2) Urban (City)
- (3) Urban-Rural (mixed)
- (4) Rural, Fields

## CONFIGURATION (First Harm)

- (0) Struck Object or Pedestrian
- (1) Rear-End
- (2) Head-On
- (3) Rear-to-Rear
- (4) Angle
- (5) Sideswipe-Same Direction
- (6) Sideswipe-Opposite Direct.
- (7) NonColl:eg Fell from Veh
- (8) NonImpact Deployment
- (9) Unknown

## Vehicles Involved (0) None

- (1) AirBag Vehicle
- (2) Other Vehicle
- (3) Both Vehicles
- (9) Unknown

## NUMBER: VEHICLES INVOLVED

(8)=8 or more

## PERSONS INVOLVED

## INJURED PERSONS

## MAXIMUM AIS IN ACCIDENT

## OTHER VEHICLE: MAXIMUM AIS

PRIME/DEPLOY IMPACT w AB VEH:  
EVENT NUMBERCDC N/A

## TOTAL DELTA-V

Model Year, Make, Model, Body Type:

## AIRBAG VEHICLE INSPECTION

DATE VEH. INSPECTED 1/91

## REASON VEHICLE NOT INSPECTED

- (0) Not Required
  - (1) Inspection Completed
  - (2) Cannot be Located\*\*
  - (3) Repaired or Destroyed\*\*
  - (5) Refuel or Impounded\*\*
  - (7) Other\*
- \*\*Specify: \_\_\_\_\_

## IMPACT DATA OBTAINED

- (0) No Data Obtained
- (1) CDC Only
- (2) Crush Profile Only
- (3) Trajectory Data Only
- (4) CDC and Crush Profile
- (5) CDC and Trajectory
- (6) Crush and Trajectory
- (7) CDC, Crush & Trajectory

## BASIS OF DELTA-V

- (0) Not Computed (Unknown Why)
- (1) CRASH - Damage Only
- (2) CRASH - Damage+Trajectory
- (3) Missing Vehicle Algorithm
- (4) Yielding Object Algorithm
- (5) Unknown Basis
- (6) One Vehicle Beyond Scope
- (7) Collision Beyond Scope
- (8) Insufficient Data

## VEHICLE HISTORY

HAS AIRBAG VEHICLE BEEN IN  
ANY PRIOR IMPACTS (1,2,9)\*HAS ANY PRIOR MAINTENANCE/SERVICE  
BEEN PERFORMED ON SYSTEM(1,2,9)\*NOT TO BROTHER'S KNOWLEDGE  
\*Describe: \_\_\_\_\_AIRBAG VEHICLE: FLEET 1990 DODGE SHACOVIN 1B3XP48K  
(PRODUCTION NUMBER DELETED)MILEAGE 18052

**SYSTEM READINESS LAMP  
(In Instrument Cluster)**

**PRE-IMPACT LAMP CONDITION**

- (1) Functioning/ProvedOut
- (2) Inoperative
- (9) Unknown

**DRIVER'S REPORT OF  
PRE-IMPACT FLASHING**

- (00) No Flashing Reported
- (01) Continuous Flashing
- (02)
  - >Number of Flashes
- (11)
- (12) Constant Light
- (19) Flashing, Unkn Number
- (88) Not App (system removed)
- (99) Unknown

**PERIOD OF PRE-IMPACT FLASHING**

- (0) No Flashing
- (1) Same Day as Impact
- (2) Prior Day
- (3) Prior Two Days
- (4) Prior Week
- (5) Prior Month
- (6) Over One Month
- (9) Unknown

**POST-IMPACT LAMP CONDITION**

- (1) Functioning/ProvedOut
- (2) Inoperative
- (9) Unknown

**POST-IMPACT FLASHING**

- (00) No Flashing
- (01) Continuous Flashing
- (02)
  - >Number of Flashes
- (11)
- (12) Constant Light
- (19) Flashing, Unkn Number
- (88) Not Appl (removed)
- (99) Unknown

9999299

**AIRBAG VEHICLE  
FIRST HARMFUL EVENT**

39

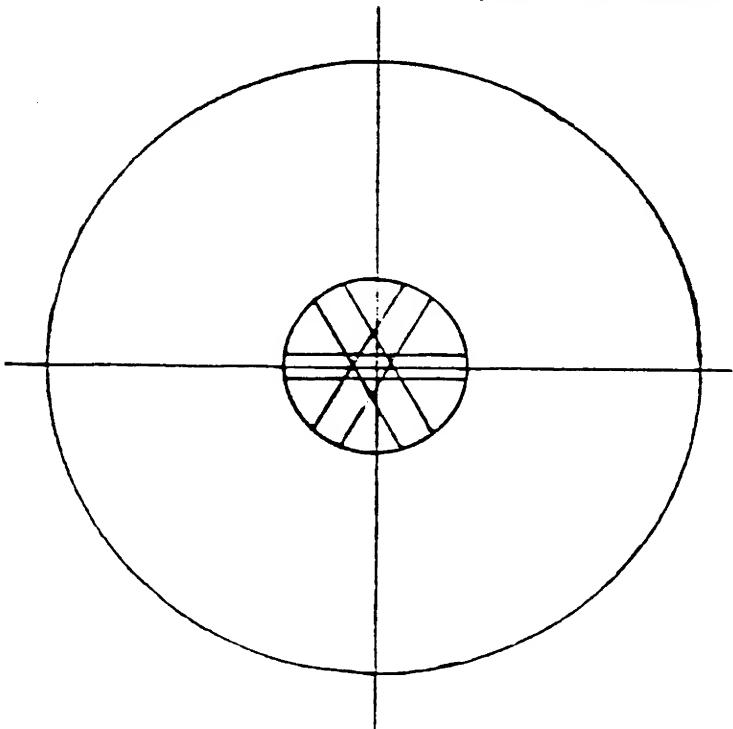
- (01) Fire or explosion
- (02) Immersion
- (03) Gas Inhalation
- (04) Fell from vehicle
- (05) Injured in vehicle
- (06) Other noncollision (specify):
- (07) Overturn
- (08) Jackknife with intraunit damage  
Collision With:
- (09) Pedestrian
- (10) Pedalcyclist
- (11) Railway train
- (12) Animal
- (13) Motor vehicle in transport (same roadway)
- (14) Motor vehicle in transport (other roadway)
- (15) Parked motor vehicle
- (16) Other type nonmotorist (specify):
- (17) Thrown or falling object
- (18) Boulder
- Collision with Fixed Object:
- (20) Building
- (21) Impact attenuator/Crush Cushion
- (22) Bridge pier or abutment
- (23) Bridge parapet end
- (24) Bridge rail
- (25) Guardrail
- (26) Concrete traffic barrier
- (27) Median barrier
- (28) Other longitudinal barrier (specify):
- (29) Highway/Traffic sign post
- (30) Overhead sign support
- (31) Luminaire/Light support
- (32) Utility pole
- (33) Other post, pole, or support (specify):
- (34) Culvert
- (35) Curb
- (36) Ditch
- (37) Embankment-earth
- (38) Embankment-rock, stone or concrete
- (39) Fence (wooden, wire, chain link, etc.)
- (40) Wall (stone, rock, metal, etc.)
- (41) Fire hydrant
- (42) Shrubbery
- (43) Tree
- (44) Other fixed object (specify):
- (45) Pavement surface irregularity (pothole, grooved, grates)
- (99) Unknown

AIRBAG VEHICLE IMPACT SUMMARY		FIRST AIRBAG VEHICLE IMPACT:	
VEHICLE ROLE	<u>1</u>	CONFIGURATION	<u>0</u>
0) Non-collision 1) Striking Unit 2) Struck Unit 3) Both Striking and Struck 9) Unknown		(0) Struck Object or Pedestrian (1) Rear-End (2) Head-On (3) Rear-to-Rear (4) Angle (5) Sideswipe - Same Direction (6) Sideswipe-Opposite Direct. (7) NonColl:eg Fell from Veh (8) NonImpact Deployment (9) Unknown	
ANNER OF LEAVING SCENE	<u>2</u>	CDC	<u>12 - E L E S - 3</u>
1) Driven 2) Towed-due to damage 3) Towed - not for damage 4) Towed - details unknown 5) Abandoned 9) Unknown		OBJECT CONTACTED:	<u>CONCRETE FENCE POST</u>
JMBER OF IMPACT EVENTS (8) 8 or more, (9) Unknown	<u>3</u>	-----	-----
OLLOVER (0) No Rollover (1) First Event (2) Subsequent Event (3) Yes, UnknownEvent (9) Unknown	<u>0</u>	PRIMARY/DEPLOYMENT IMPACT:	<u>1</u>
VERRIDE/UNDERRIDE	<u>0</u>	EVENT NUMBER	<u>14</u>
1) No over/underride 1) Override - 1st CDC 5) - Other CDC 4) Underride - 1st CDC 6) - Other CDC 9) Unknown		TOTAL DELTA-V 14.4 mph	<u>014</u>
-----		LONGITUDINAL DELTA-V -14.4 mph	<u>0</u>
AIRBAG VEHICLE DAMAGE	<u>0</u>	CONFIGURATION	
CODES: (1) Yes, DAMAGED (2) No Damage (9) Unknown		(0) Struck Object or Pedestrian (1) Rear-End (2) Head-On (3) Rear-to-Rear (4) Angle (5) Sideswipe - Same Direction (6) Sideswipe-Opposite Direct. (7) NonColl:eg Fell from Veh (8) NonImpact Deployment (9) Unknown	
EFT FRONT FENDER DAMAGE	<u>1</u>	CDC	<u>12 - E C E N - 2</u>
IHT FRONT FENDER DAMAGE	<u>2</u>	OBJECT CONTACTED:	<u>10" DIAMETER UTILITY POLE</u>
ENTER TOP OF GRILLE DAMAGE	<u>1</u>	NOTES:	
RONT BUMPER E.A. STATUS: Left	<u>3</u>		
1) Normal Right 2) Extended 3) Partial Compression 4) Complete Compression 5) Not Applicable 9) Unknown	<u>3</u>		

AIRBAG SYSTEM DAMAGE		CONDITION OF DEPLOYED BAG	1
CODES: (1) Yes, Damaged*(2) No, Intact (8) Not App. (Removed) (9) Unknown		(1) Bag Intact (2) Split or Torn* (3) Cut by Object in Impact* (4) Cut after Accident* (5) Other (e.g., burned)* (8) N/A (not deployed) (9) Unknown	
AIRBAG MODULE	<u>2</u>		
SENSORS: Left Front	<u>2</u>		
Center Front	<u>8</u>	*DESCRIBE System and Bag Damage:	
Right Front	<u>2</u>		
Rear, Cowl	<u>2</u>		
DIAGNOSTIC MODULE	<u>2</u>		
WIRING	<u>2</u>		
KNEE DIVERTER	<u>2</u>		
INDICATION OF DISCONNECTED OR LOOSE ELECTRICAL CONNECTORS	<u>2</u>		

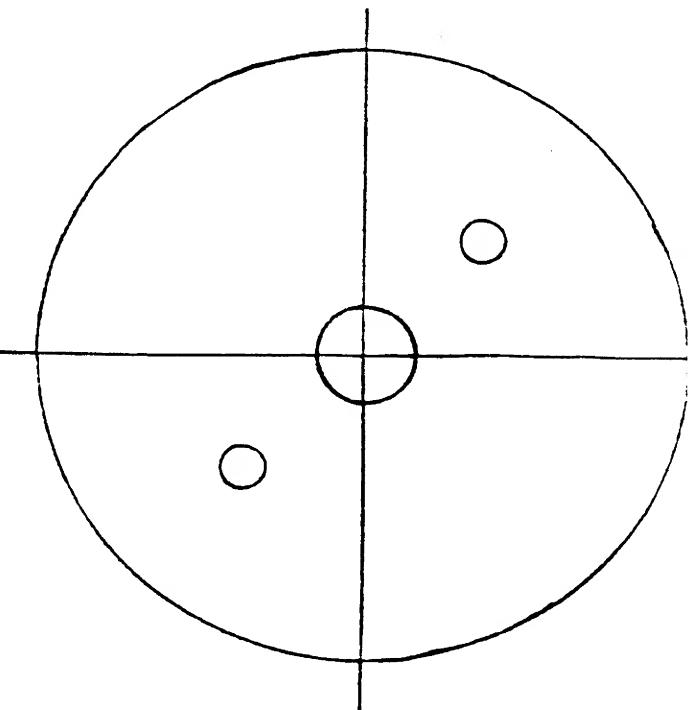
NOTE DAMAGE AND CONTACT MARKS ON AIRBAG DIAGRAMS BELOW:

NO EVIDENCE OF BAG CONTACT



FRONT

TOP



BOTTOM

BACK

## OCCUPANTS/DRIVER

## AIRBAG SUPPLEMENT

AB-5

OCCUPANTS of AIRBAG CAR		NOTES:
NUMBER OF OCCUPANTS IN VEHICLE (8) 8 or more	<u>1</u>	
NUMBER OF INJURED PERSONS	<u>1</u>	
MAXIMUM AIS IN AIRBAG VEHICLE (0) No Injury 1-6) AIS Severity 7) Injured, Unknown Severity 8) Unknown	<u>5</u>	
RIVER AGE <u>36</u> SEX <u>FEMALE</u>		
NUMBER OF DRIVER INJURIES	<u>19</u>	
SOURCE OF BEST INJURY DATA	<u>1</u>	
(0) Not injured (1) Autopsy w/o med. records (2) Hospital Medical Records (3) Emergency Room only (4) Private physician, Clinic (5) Lay Coroner Report (6) EMS Personnel (7) Interviewee (8) Police (9) Unknown		
-----		
MAXIMUM AIS BY BODY REGION		
REGION	MAX AIS	NASS CODES
Head/Neck/Face	<u>3</u>	<u>40</u>
Rest	<u>4</u>	<u>45/04</u>
Abdomen	<u>5</u>	<u>45/04</u>
Leg/Hips	<u>1</u>	<u>13</u>
Other (Arms)	—	—
RIVER MAXIMUM	<u>5</u>	<u>45/04</u>
-----		
EJECTION: Extent <u>NONE</u>		
Portal <u>n/a</u>		

DRIVER BELT USAGE: (1) Used (2) Not Used (9) Unknown 1

Evidence: 3-POINT LAP + SHOULDER, POLICE OFFICERS OBSERVATIONS,  
SNAG ON BELT WEBBING, ABRASION TO LEFT NECK

DRIVER POSTURE: Any Comments Recorded (1) Yes, (2) No 1

Describe driver's posture and position on seat including specific comments on head, torso, buttocks, legs and feet. Also note hand and arm position. Did driver brace before crash? Describe:

SLUMPED FORWARD AT IMPACT, AGAINST OR WITHIN A CLOSE PROXIMITY TO STEERING WHEEL

DRIVER FOREIGN OBJECTS: Comments Recorded (1) Yes, (2) No 1

Was driver wearing contact lenses or eyeglasses? Or holding any foreign object at the time of the impact (packages on lap, pipe, food, bottle, cigarette, etc.)? Did any lenses, objects, or jewelry play any role?:

JEWELRY PIN WORN OVER LEFT CHEST, EARRINGS

DRIVER COMMENTS: Comments Recorded (1) Yes, (2) No 2

Was the driver aware that the vehicle was equipped with a supplemental restraint system? Did driver offer any comments on smoke, noise, etc.? Did the driver comment on the airbag as a restraint system? Describe:

FATAL WITHIN 4 HOURS OF CRASH

PASSENGER-AIRBAG CONTACT (1) Yes, (2) No, (9) Unknown 8

Describe: NO PASSENGER

APPENDIX D

NASS Vehicle Forms



# GENERAL VEHICLE FORM

1. Primary Sampling Unit Number

2. Case Number—Stratum

3. Vehicle Number

## VEHICLE IDENTIFICATION

4. Vehicle Model Year

Code the last two digits of the model year  
(99) Unknown

90

5. Vehicle Make (specify):

DODGE

Applicable codes are found in your  
NASS CDS Data Collection, Coding, and  
Editing Manual.  
(99) Unknown

07

6. Vehicle Model (specify):

SHADOW

Applicable codes are found in your  
NASS CDS Data Collection, Coding, and  
Editing Manual.  
(999) Unknown

017

7. Body Type

Note: Applicable codes are found on  
the back of this page.

05

8. Vehicle Identification Number

LB3XP48K5LN

Left justify; Slash zeros and letter Z (0 and Z)  
No VIN—Code all zeros  
Unknown—Code all nine's

## OFFICIAL RECORDS

9. Police Reported Vehicle Disposition

(0) Not towed due to vehicle damage  
(1) Towed due to vehicle damage  
(9) Unknown

1

10. Police Reported Travel Speed

99

Code to the nearest mph (NOTE: 00 means  
less than 0.5 mph)  
(97) 96.5 mph and above  
(99) Unknown

11. Police Reported Alcohol Test Result

- (0) No alcohol present
- (1) Yes (alcohol present)
- (7) Not reported
- (8) No driver present
- (9) Unknown

Note: See variables 37 through 55  
(Page 4) for Information on Other Drugs

96

12. Alcohol Test Result for Driver

Code actual value (decimal implied before  
first digit—0.xx)

- (95) Test refused
- (96) None given
- (97) AC test performed, results unknown
- (98) No driver present
- (99) Unknown

Source \_\_\_\_\_

## ACCIDENT RELATED

13. Speed Limit

(00) No statutory limit  
Code posted or statutory speed limit  
(99) Unknown

35

14. Attempted Avoidance Maneuver

- (00) No impact
- (01) No avoidance actions
- (02) Braking (no lockup)
- (03) Braking (lockup)
- (04) Braking (lockup unknown)
- (05) Releasing brakes
- (06) Steering left
- (07) Steering right
- (08) Braking and steering left
- (09) Braking and steering right
- (10) Accelerating
- (11) Accelerating and steering left
- (12) Accelerating and steering right
- (97) No driver present
- (98) Other action (specify):  
  
(99) Unknown

01

15. Accident Type

Applicable codes may be found on the back  
of page two of this field form

- (00) No impact
- Code the number of the diagram that  
best describes the accident circumstance
- (98) Other accident type (specify):  
  
(99) Unknown

06

\*\*\*\*\* SKIP TO VARIABLE GV37 IF GV07 DOES NOT EQUAL 01-49 \*\*\*\*\*

**CODES FOR BODY TYPE****CDS APPLICABLE VEHICLES****Automobiles**

- (01) Convertible (excludes sun-roof, t-bar)
  - (02) 2-door sedan, hardtop, coupe
  - (03) 3-door/2-door hatchback
  - (04) 4-door sedan, hardtop
  - (05) 5-door/4-door hatchback
  - (06) Station wagon (excluding van and truck based)
  - (08) Other automobile type (specify):
- 

- (09) Unknown automobile type

**Automobile Derivatives**

- (10) Auto based pickup (includes El Camino, Caballero, Ranchero, and Brat)
- (11) Auto based panel (cargo station wagon, includes auto based ambulance/hearse)
- (12) Large limousine—more than four side doors or stretched chassis

**Utility Vehicles**

- (13) Short utility—not truck based (includes Jeep CJ-5, Jeep CJ-7, Renegade, Landrover, Pre-78 Bronco, Landcruiser, Thing)
- (14) Truck based utility (2-door; includes Blazer, Bronco—78 on, Bronco II, Jimmy, Ramcharger, Cherokee, Trailduster, Scout)

**Van Based Light Trucks ( $\leq$  10,000 lbs GVWR)**

- (20) Minivan (Lumina APV, Astro, Caravan, Plymouth Vista, Aerostar, Safari, Voyager [84 and after], Dodge Vista, Mini Ram Van, Toyota Cargo Van, Toyota Van, Vanagon, VW Bus, Kombi)
  - (21) Standard van (Sportvan, Chevy Van, Club Wagon, Ford Econoline, Ram Van, Chateau, Ram Wagon, Vandura, Rally, Voyager [83 and before], Beauville, Sportsman)
  - (28) Other van type (Hi-Cube Van, Kary) (specify):
- 

- (29) Unknown van type

**Light Conventional Trucks (Pickup Style Cab,  $\leq$  10,000 lbs GVWR)**

- (30) Compact pickup (<4,500 lbs. GVWR, S-10, LUV, Ram 50, Rampage, Courier, Ranger, S-15 Pup, Mazda Pickup, Mitsubishi Truck, Nissan Pickup, Arrow Pickup, Scamp, Toyota Pickup, VW Pickup)
- (31) Standard pickup (4,500 to 10,000 lbs. GVWR, C10 - C30, K10 - K30, T10, D100 - D350, W150 - W350, F100 - F350, Comanche, J10 - J30, Dakota)
- (32) Pickup with slide-in camper
- (33) Truck based station wagon (4-door; includes Suburban, Travelall, Wagoneer)
- (34) Light truck based suburban limousine
- (35) Convertible pickup
- (39) Unknown (pickup style) light conventional truck type

**Other Light Trucks ( $\leq$  10,000 lbs GVWR)**

- (40) Cab chassis based (Includes rescue vehicle, light stake, dump, and tow truck)
  - (41) Truck based panel
  - (42) Light truck based motorhome (chassis mounted)
  - (47) Other light conventional truck type (not a pickup—includes step vans  $\leq$  10,000 lbs GVWR, Grumman LLV vehicle) (specify):
- 
- (48) Unknown other light truck type (not a pickup)
  - (49) Unknown light vehicle type (automobile, van, or light truck)

**OTHER VEHICLES****Buses (Excludes Van Based)**

- (50) School bus (designed to carry students, not cross country or transit)
  - (58) Other bus type (e.g., transit, intercity, bus based motorhome) (specify):
- 

- (59) Unknown bus type

**Medium/Heavy Trucks ( $>$ 10,000 lbs GVWR)**

- (60) Step van
- (61) Single unit straight truck (10,000 lbs  $<$  GVWR  $\leq$  26,000 lbs)
- (62) Single unit straight truck ( $>$ 26,000 lbs GVWR)
- (63) Medium/heavy truck based motorhome
- (64) Truck-tractor with no cargo trailer
- (65) Truck-tractor pulling one trailer
- (66) Truck-tractor pulling two or more trailers
- (67) Truck-tractor (unknown if pulling trailer)
- (68) Unknown medium/heavy truck type
- (69) Unknown truck type (light/medium/heavy)

**Motored Cycles (Does Not Include All-Terrain Vehicles/Cycles)**

- (70) Motorcycle
  - (71) Moped (motorized bicycle)
  - (78) Other motored cycle type(minibike, motorscooter) (specify):
- 

- (79) Unknown motored cycle type

**Other Vehicles**

- (80) ATV (All-Terrain Vehicle) and ATC (All-Terrain Cycle)
  - (88) Other vehicle type (specify):
- 

- (99) Unknown body type

**OCCUPANT RELATED****16. Driver Presence in Vehicle**

- (0) Driver not present  
 (1) Driver present  
 (9) Unknown

**17. Number of Occupants This Vehicle**

- 0 1  
 (00-96) Code actual number of occupants  
 for this vehicle  
 (97) 97 or more  
 (99) Unknown

**18. Number of Occupant Forms Submitted**0 1**VEHICLE WEIGHT ITEMS****19. Vehicle Curb Weight**

2642 Code weight to nearest  
 100 pounds.

- (010) Less than 1050 pounds  
 (135) 13,500 lbs or more  
 (999) Unknown

Source: \_\_\_\_\_

**20. Vehicle Cargo Weight**

0 0 0 Code weight to nearest  
 100 pounds.

- (00) Less than 50 pounds  
 (97) 9,650 lbs or more  
 (99) Unknown

**RECONSTRUCTION DATA****21. Towed Trailing Unit**

- (0) No towed unit  
 (1) Yes - towed trailing unit  
 (9) Unknown

**22. Documentation of Trajectory Data  
 for This Vehicle**

- (0) No  
 (1) Yes

**23. Post Collision Condition of Tree or Pole  
 (for Highest Delta V)**

- (0) Not collision (for highest delta V) with  
 tree or pole  
 (1) Not damaged  
 (2) Cracked/sheared  
 (3) Tilted <45 degrees  
 (4) Tilted ≥45 degrees  
 (5) Uprooted tree  
 (6) Separated pole from base  
 (7) Pole replaced  
 (8) Other (specify):  
 \_\_\_\_\_

- (9) Unknown

**24. Rollover**

- (0) No rollover (no overturning)

Rollover (primarily about the longitudinal axis)

- (1) Rollover, 1 quarter turn only

- (2) Rollover, 2 quarter turns

- (3) Rollover, 3 quarter turns

- (4) Rollover, 4 or more quarter turns (specify):  
 \_\_\_\_\_

(5) Rollover - end-over-end (i.e., primarily  
 about the lateral axis)

- (9) Rollover (overturn), details unknown

**OVERRIDE/UNDERRIDE (THIS VEHICLE)****25. Front Override/Underride (this vehicle)**0**26. Rear Override/Underride (this vehicle)**0(0) No override/underride, or  
 not an end-to-end impact

Override (see specific CDC)

- (1) 1st CDC  
 (2) 2nd CDC  
 (3) Other not automated CDC (specify):  
 \_\_\_\_\_

Underride (see specific CDC)

- (4) 1st CDC  
 (5) 2nd CDC  
 (6) Other not automated CDC (specify):  
 \_\_\_\_\_

- (7) Medium/heavy truck or bus override  
 (9) Unknown

**HEADING ANGLE AT IMPACT FOR  
 HIGHEST DELTA V**

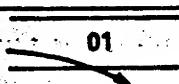
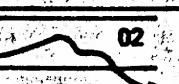
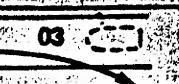
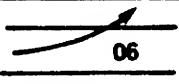
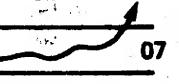
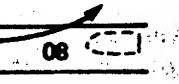
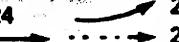
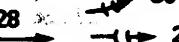
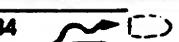
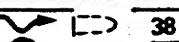
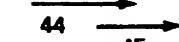
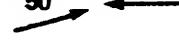
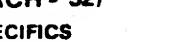
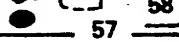
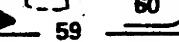
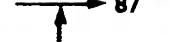
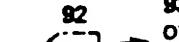
Values: (000)-(359) Code actual value

(997) Noncollision

(998) Impact with object

(999) Unknown

**27. Heading Angle for This Vehicle**9 9 8**28. Heading Angle for Other Vehicle**9 9 8

Category	Configuration	ACCIDENT TYPES (Includes Intent)					
		01 DRIVE OFF ROAD	02 CONTROL/ TRACTION LOSS	03 AVOID COLLISION WITH VEH., PED., ANIM.	04 SPECIFICS OTHER	05 SPECIFICS UNKNOWN	
I. Single Driver	A. Right Roadside Departure						
	B. Left Roadside Departure				09 SPECIFICS OTHER	10 SPECIFICS UNKNOWN	
	C. Forward Impact				14 END DEPARTURE	15 SPECIFICS OTHER	16 SPECIFICS UNKNOWN
II. Same Trafficway Same Direction	D. Rear-End				26 SLOWER 25, 26, 27	28 DECEL. 29, 30, 31	30 (EACH • 32) 31 (EACH • 33)
	E. Forward Impact				39 AVOID COLLISION WITH VEH.	40 AVOID COLLISION WITH OBJECT	41 SPECIFICS OTHER (EACH • 42)(EACH • 43)
	F. Sideswipe/Angle				47 SPECIFICS OTHER	(EACH • 48) (EACH • 49)	SPECIFICS UNKNOWN
III. Same Trafficway Opposite Direction	G. Head-On			52 SPECIFICS OTHER	(EACH • 52)	(EACH • 53)	SPECIFICS UNKNOWN
	H. Forward Impact				59 AVOID COLLISION WITH VEH.	60 AVOID COLLISION WITH OBJECT	61 (EACH • 62)(EACH • 63)
	I. Sideswipe/Angle			66 SPECIFICS OTHER	(EACH • 66)	(EACH • 67)	SPECIFICS UNKNOWN
IV. Change Trafficway Vehicle Turning	J. Turn Across Path				71 INITIAL OPPOSITE DIRECTIONS	72 INITIAL SAME DIRECTIONS	73 (EACH • 74)(EACH • 75)
	K. Turn Into Path				79 TURN INTO SAME DIRECTION	80 TURN INTO OPPOSITE DIRECTIONS	81 82 (EACH • 84)(EACH • 85)
V. Intersecting Paths (Vehicle Damage)	L. Straight Paths				89 SPECIFICS OTHER	(EACH • 90)	(EACH • 91)
VI. Miscellaneous	M. Backing Etc.			98 OTHER VEH. OR OBJECT	99 UNKNOWN ACCIDENT TYPE	00 NO IMPACT	

## 29. Basis for Total Delta V (Highest)

## Delta V Calculated

- (1) CRASH program—damage only routine  
 (2) CRASH program—damage and trajectory routine  
 (3) Missing vehicle algorithm

## Delta V Not Calculated

- (4) At least one vehicle (which may be this vehicle) is beyond the scope of an acceptable reconstruction program, regardless of collision conditions.
- (5) All vehicles within scope (CDC applicable) of CRASH program but one of the collision conditions is beyond the scope of the CRASH program or other acceptable reconstruction techniques, regardless of adequacy of damage data.
- (6) All vehicles and collision conditions are within scope of one of the acceptable reconstruction programs, but there is insufficient data available.

## COMPUTER GENERATED DELTA V

Secondary      Highest

## 30. Total Delta V

14.4 Nearest mph

- (NOTE: 00 means less than 0.5 mph)  
 (97) 96.5 mph and above  
 (99) Unknown

## 31. Longitudinal Component of Delta V

-14.4 Nearest mph

- (NOTE: \_00 means greater than -0.5 and less than + 0.5 mph)  
 (±97) ± 96.5 mph and above  
 (—99) Unknown

Secondary      Highest

## 32. Lateral Component of Delta V

0.0 Nearest mph

- (NOTE: \_00 means greater than -0.5 and less than + 0.5 mph)  
 (±97) ± 96.5 mph and above  
 (—99) Unknown

## 33. Energy Absorption

0 1 9 , 7 0 019655.9 Nearest 100 foot-lbs

- (NOTE: 0000 means less than 50 Foot-Lbs)  
 (9997) 999,650 foot-lbs or more  
 (9999) Unknown

## 34. Confidence in Reconstruction Program Results (for Highest Delta V)

- (0) No reconstruction  
 (1) Collision fits model—results appear reasonable  
 (2) Collision fits model—results appear high  
 (3) Collision fits model—results appear low  
 (4) Borderline reconstruction—results appear reasonable

## 35. Type of Vehicle Inspection

- (0) No Inspection  
 (1) Complete inspection  
 (2) Partial inspection (specify): \_\_\_\_\_

## 36. Is this an AOPS Vehicle?

- (0) No  
 (1) Yes

IS OLDMISS APPLICABLE FOR THIS VEHICLE? [ ] YES [  ] NO  
 IF YES: IS A COMPLETED OLDMISS PROGRAM SUMMARY INCLUDED? [ ] YES [ ] NO

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## National Accident Sampling System-Crashworthiness Data System: General Vehicle Form Page 4

37. Police Reported Other Drug Presence 

- (0) No other drugs present
- (1) Yes (other drug present)
- (7) Not reported
- (8) No driver present
- (9) Unknown

38. Police Reported Observation/Perception 

## Test Type For Driver

- (0) No observation/perception test given
- (1) Drug recognition technician (DRT) determination
- (2) Behavioral
- (3) Other physical observation/perception determination (specify):  
\_\_\_\_\_
- (7) Other observation/perception test
- (8) No driver present

(9) Unknown if observation/perception test given

39. Other Drug Specimen Test Type For Driver 

- (0) No specimen test given
- (1) Blood test
- (2) Urine test
- (3) Other specimen tests (specify):  
\_\_\_\_\_
- (7) Unspecified specimen test
- (8) No driver present
- (9) Unknown if specimen test given

## OTHER DRUGS TEST RESULTS FOR DRIVER

Observation/ Perception	Specimen	Test Results	Test Results
Narcotic Drug	40.	0	41. 1
Depressant Drug	42.	0	43. 1
Stimulant Drug	44.	0	45. 1
Hallucinogen Drug	46.	0	47. 1
Cannabinoid Drug	48.	0	49. 1
Phencyclidine (PCP)Drug	50.	0	51. 1
Inhalant Drug	52.	0	53. 1
Other Drug (Excluding Nicotine, Aspirin, Alcohol, Drugs Administered Post-Crash)	54.	0	55. 1

## Codes For Observation/Perception Test Results

- (0) No observation/perception test given
- (1) Passed observation/perception test
- (2) Failed observation/perception test
- (3) Observation/perception test given—results unknown
- (8) No driver present
- (9) Unknown if observation/perception test given

## Codes for Specimen Test Results

- (0) No specimen test given
- (1) Drug not found in specimen
- (2) Drug found in specimen
- (8) No driver present
- (9) Unknown if specimen test given

\*\*\* IF THE CDS APPLICABLE VEHICLE WAS NOT INSPECTED (I.E., GV35 = 0), \*\*\*  
DO NOT COMPLETE THE EXTERIOR AND INTERIOR VEHICLE FORMS

\*\*\* IF GV07 DOES NOT EQUAL 01-49, DO NOT COMPLETE \*\*\*  
THE EXTERIOR VEHICLE, INTERIOR VEHICLE,  
OCCUPANT ASSESSMENT, AND OCCUPANT INJURY FORMS.



**U.S. Department of Transportation  
National Highway Traffic Safety  
Administration**

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## **EXTERIOR VEHICLE FORM**

# NATIONAL ACCIDENT SAMPLING SYSTEM CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number	_____	3. Vehicle Number	<u>O 1</u>
2. Case Number - Stratum	<u>9 1-12</u>		

## **VEHICLE IDENTIFICATION**

VIN 1B3XP48K5LN Model Year 1990

**Vehicle Make (specify):** DODGE      **Vehicle Model (specify):** SHADOW

## **LOCATOR**

Locate the end of the damage with respect to the vehicle longitudinal center line or bumper corner for end impacts or an undamaged axle for side impacts.

Specific Impact No.	Location of Direct Damage	Location of Field L
1 (POST)	LEFT SIDESWIPE, MASKED BY IMPACT #2	-
2 (POST)	BUMPER, 5" INBOARD OF CORNER	-
3 (POLE)	BUMPER-8.75", 26.25" INBOARD OF (R)CORNER. WHOLE BUMPER -48"	

## **CRUSH PROFILE**

**NOTES:** Identify the plane at which the C-measurements are taken (e.g., at bumper, above bumper, at sill, above sill, etc.) and label adjustments (e.g., free space).

**Measure and document on the vehicle diagram the location of maximum crush.**

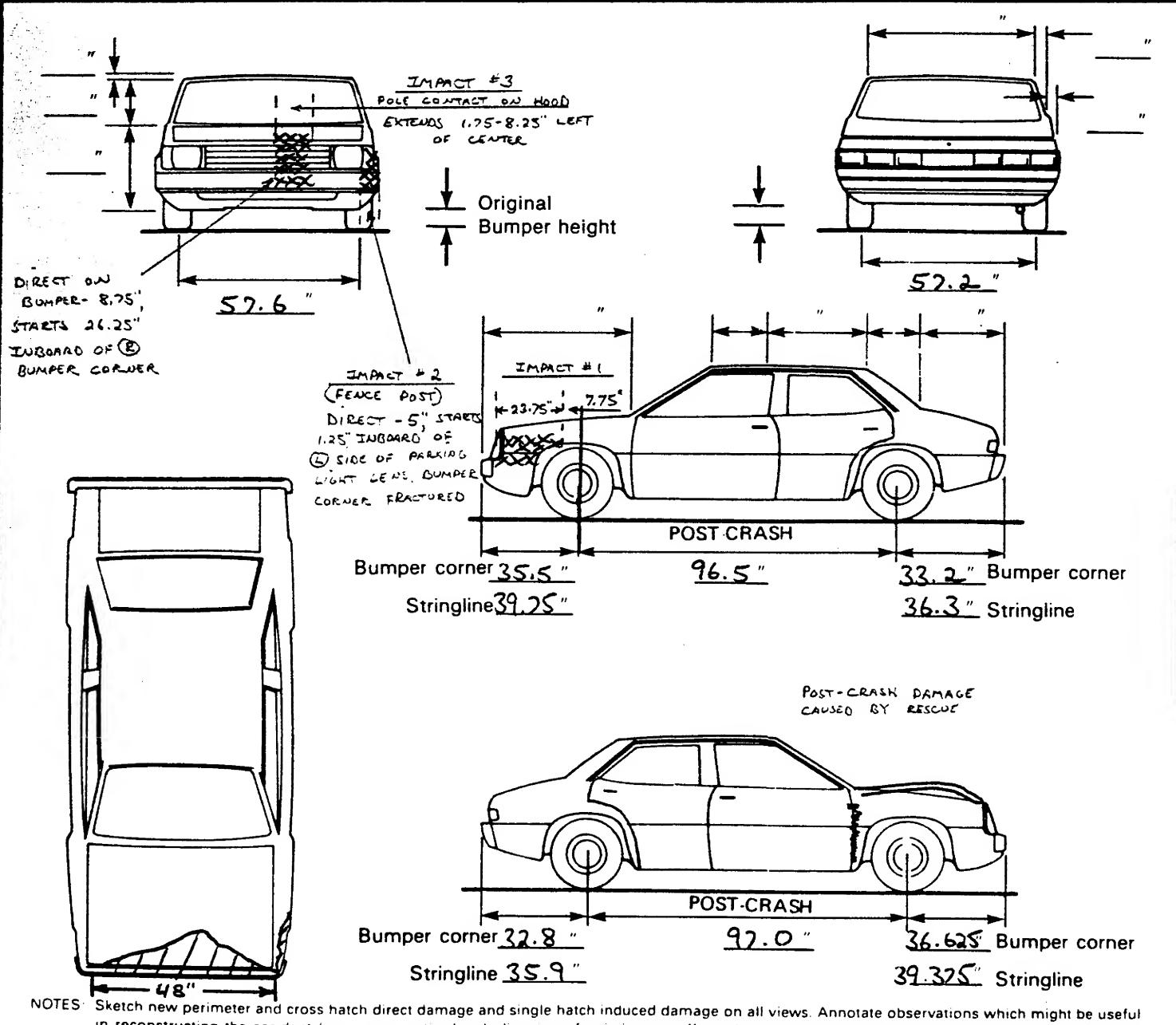
**Measure C1 to C6 from driver to passenger side in front or rear impacts and rear to front in side impacts.**

Free space value is defined as the distance between the baseline and the original body contour taken at the individual C locations. This may include the following: bumper lead, bumper taper, side protrusion, side taper, etc. Record the value for each C-measurement and maximum crush.

**Use as many lines/columns as necessary to describe each damage profile.**

## VEHICLE DAMAGE SKETCH

<b>TIRE - WHEEL DAMAGE</b>		<b>ORIGINAL SPECIFICATIONS</b>		<b>WHEEL STEER ANGLES</b> (For locked front wheels or displaced rear axles only)
a. Rotation physically restricted	b. Tire deflated	Wheelbase	97.0	RF ± _____ °
RF <u>2</u>	LF <u>2</u>	Overall Length	121.7	LF ± _____ °
LF <u>2</u>	RR <u>2</u>	Maximum Width	67.3"	RR ± _____ °
RR <u>2</u>	LR <u>2</u>	Curb Weight	2642	LR ± _____ °
LR <u>2</u>		Average Track	52.4	Within ± 5 degrees
(1) Yes (2) No (8) NA (9) Unk.		Front Overhang	38.3	
		Rear Overhang	36.4	
		Engine Size: cyl./ displ.	4/2.5 liter	<b>DRIVE WHEELS</b>
		Undeformed End Width	52.5"	<input checked="" type="checkbox"/> FWD <input type="checkbox"/> RWD <input type="checkbox"/> 4WD
<b>TYPE OF TRANSMISSION</b>				Approximate Cargo Weight <u>250 LBS</u>
<input type="checkbox"/> Manual <b>3-SPEED</b> <input checked="" type="checkbox"/> Automatic				



**NOTES:** Sketch new perimeter and cross hatch direct damage and single hatch induced damage on all views. Annotate observations which might be useful in reconstructing the accident (e.g., grass in tire bead, direction of striations, scuff on sidewall, etc.). If pulling trailer, sketch type of trailer and damage received on the back of this page.

Annotate any damage caused by extrication such as component removal by torching, prying, or hydraulic shears.

## CDC WORKSHEET

**CODES FOR OBJECT CONTACTED:**

- 01-30 – Vehicle Number

### Noncollision

- (31) Overturn – rollover
  - (32) Fire or explosion
  - (33) Jackknife
  - (34) Other intraunit damage (specify):

**(35) Noncollision injury**

(38) Other noncollision (specify):

(39) Noncollision—details unknown

## Collision with Fixed Object

- (41) Tree ( $\leq$  4 inches in diameter)
  - (42) Tree ( $>$  4 inches in diameter)
  - (43) Shrubbery or bush
  - (44) Embankment

(45) Breakaway pole or post (any diameter)

## **Nonbreakaway Pole or Post**

- (50) Pole or post ( $\leq$ 4 inches in diameter)
  - (51) Pole or post ( $>$ 4 but  $\leq$ 12 inches in diameter)
  - (52) Pole or post ( $>$ 12 inches in diameter)
  - (53) Pole or post (diameter unknown)

**(54) Concrete traffic barrier**

**(55) Impact attenuator**

(56) Other traffic barrier (specify):

- (57) Fence**

- (58) Wall
  - (59) Building
  - (60) Ditch or Culvert
  - (61) Ground
  - (62) Fire hydrant
  - (63) Curb
  - (64) Bridge
  - (68) Other fixed object

**(69) Unknown fixed object**

## Collision With Nonfixed Object

- (71) Motor vehicle not in transport
  - (72) Pedestrian
  - (73) Cyclist or cycle
  - (74) Other nonmotorist or conveyance (specify):

**(75) Vehicle occupant**

- (76) Animal  
(77) Train  
(78) Trailer, disconnected in transport -  
(88) Other nonfixed object (specify):

(89) Unknown nonfixed object

(98) Other event (specify):

**(99) Unknown event or object**

## DEFORMATION CLASSIFICATION BY EVENT NUMBER

## COLLISION DEFORMATION CLASSIFICATION

## HIGHEST DELTA "V"

Accident Event Sequence Number	Object Contacted	Direction of Force	Deformation Location	(4) Specific Longitudinal or Lateral Location	(5) Specific Vertical or Lateral Location	(6) Type of Damage Distribution	(7) Deformation Extent
4. <u>03</u>	5. <u>51</u>	6. <u>L2</u>	7. <u>F</u>	8. <u>C</u>	9. <u>E</u>	10. <u>N</u>	11. <u>O2</u>

## Second Highest Delta "V"

12. O2 13. 57 14. L2 15. F 16. L 17. E 18. E 19. O1

## CRUSH PROFILE

(The crush profile for the damage described in the CDC(s) above should be documented in the appropriate space below. ALL MEASUREMENTS ARE IN INCHES.)

## HIGHEST DELTA "V"

20.	21.	C1	C2	C3	C4	C5	C6	22. + - D
<u>048</u>	<u>00</u>	<u>06</u>	<u>13</u>	<u>07</u>	<u>02</u>	<u>00</u>	<u>002</u>	+ <u>0</u>

## Second Highest Delta "V"

23.	24.	C1	C2	C3	C4	C5	C6	25. + - D
—	—	—	—	—	—	—	—	+

26. Are CDCs Documented but Not Coded on The Automated File?

- (0) No  
(1) Yes

27. Researcher's Assessment of Vehicle Disposition

- (0) Not towed due to vehicle damage  
(1) Towed due to vehicle damage  
(9) Unknown

28. Original Wheelbase

97.0 Code to the nearest tenth of an inch  
(9999) Unknown

097.0

29. Is This A Multi-Stage Manufactured Vehicle  
And/Or A Certified Altered Vehicle? 

- (0) No post manufacturer modifications  
 (1) Yes - post manufacturer modifications  
 (specify): \_\_\_\_\_

(Include photograph of CERTIFICATION PLACARD in case report)

- (9) Unknown if vehicle is modified

30. Fire Occurrence 

- (0) No fire

Yes, fire occurred

- (1) Minor  
 (2) Major  
 (9) Unknown

31. Origin of Fire 

- (0) No fire  
 (1) Vehicle exterior (front, side, back, top)  
 (2) Exhaust system  
 (3) Fuel tank (and other fuel retention system parts)  
 (4) Engine compartment  
 (5) Cargo/trunk compartment  
 (6) Instrument panel  
 (7) Passenger compartment area  
 (8) Other location (specify): \_\_\_\_\_

- (9) Unknown

32. Type of Fuel Tank 

- (0) No fuel tank (electrical vehicle)  
 (1) Metallic  
 (2) Non-metallic  
 (9) Unknown

\*\*\* STOP: IF THE CDS APPLICABLE VEHICLE WAS NOT TOWED \*\*\*  
 (I.E., GV09=0 OR 9), DO NOT COMPLETE THE INTERIOR VEHICLE FORM.



# INTERIOR VEHICLE FORM

1. Primary Sampling Unit Number \_\_\_\_\_  
 2. Case Number - Stratum 91-12  
 3. Vehicle Number 01

## INTEGRITY

4. Passenger Compartment Integrity 00

(00) No integrity loss

Yes, Integrity Was Lost Through

- (01) Windshield
- (02) Door (side)
- (03) Door/hatch (back door)
- (04) Roof
- (05) Roof glass
- (06) Side window
- (07) Rear window (backlight)
- (08) Roof and roof glass
- (09) Windshield and door (side)
- (10) Windshield and roof
- (11) Side and rear window (side window and backlight)
- (12) Windshield and side window
- (13) Door and side window
- (98) Other combination of above (specify): \_\_\_\_\_

(99) Unknown

### Door, Tailgate Or Hatch Opening

5. LF 1 6. RF 1 7. LR 1 8. RR 1 9. TG/H 1

- (0) No door/gate/hatch
- (1) Door/gate/hatch remained closed and operational
- (2) Door/gate/hatch came open during collision
- (3) Door/gate/hatch jammed shut
- (8) Other (specify): \_\_\_\_\_

(9) Unknown

Damage/Failure Associated with Door, Tailgate or Hatch Opening in Collision. If IV05-IV09 ≠ 2, Then Code 0.

10. LF 0 11. RF 0 12. LR 0 13. RR 0 14. TG/H 0

- (0) No door/gate/hatch or door not opened

Door, Tailgate, or Hatch Came Open During Collision

- (1) Door operational (no damage)
- (2) Latch/striker failure due to damage
- (3) Hinge failure due to damage
- (4) Door structure failure due to damage
- (5) Door support (i.e., pillar, sill, roof side rail, etc.) failure due to damage
- (6) Latch/striker and hinge failure due to damage
- (8) Other failure (specify): \_\_\_\_\_

(9) Unknown

## GLAZING

### Glazing Damage from Impact Forces

15. WS 0 16. LF 0 17. RF 0 18. LR 0 19. RR 0

20. BL 0 21. Roof 8 22. Other 8

- (0) No glazing damage from impact forces
- (2) Glazing in place and cracked from impact forces
- (3) Glazing in place and holed from impact forces
- (4) Glazing out-of-place (cracked or not) and not holed from impact forces
- (5) Glazing out-of-place and holed from impact forces
- (6) Glazing disintegrated from impact forces
- (7) Glazing removed prior to accident
- (8) No glazing
- (9) Unknown if damaged

### Glazing Damage from Occupant Contact

23. WS 0 24. LF 0 25. RF 0 26. LR 0 27. RR 0

28. BL 0 29. Roof 0 30. Other 0

- (0) No occupant contact to glazing or no glazing
- (1) Glazing contacted by occupant but no glazing damage
- (2) Glazing in place and cracked by occupant contact
- (3) Glazing in place and holed by occupant contact
- (4) Glazing out-of-place (cracked or not) by occupant contact and not holed by occupant contact
- (5) Glazing out-of-place by occupant contact and holed by occupant contact
- (6) Glazing disintegrated by occupant contact
- (9) Unknown if contacted by occupant

If No Glazing Damage **And** No Occupant Contact or No Glazing, Then Code IV 31 Through IV 46 As 0

### Type of Window/Windshield Glazing

31. WS 0 32. LF 0 33. RF 0 34. LR 0 35. RR 0

36. BL 0 37. Roof 0 38. Other 0

- (0) No glazing contact and no damage, or no glazing
- (1) AS-1 – Laminated
- (2) AS-2 – Tempered
- (3) AS-3 – Tempered-tinted
- (4) AS-14 – Glass/Plastic
- (8) Other (specify): \_\_\_\_\_

(9) Unknown

### Window Precrash Glazing Status

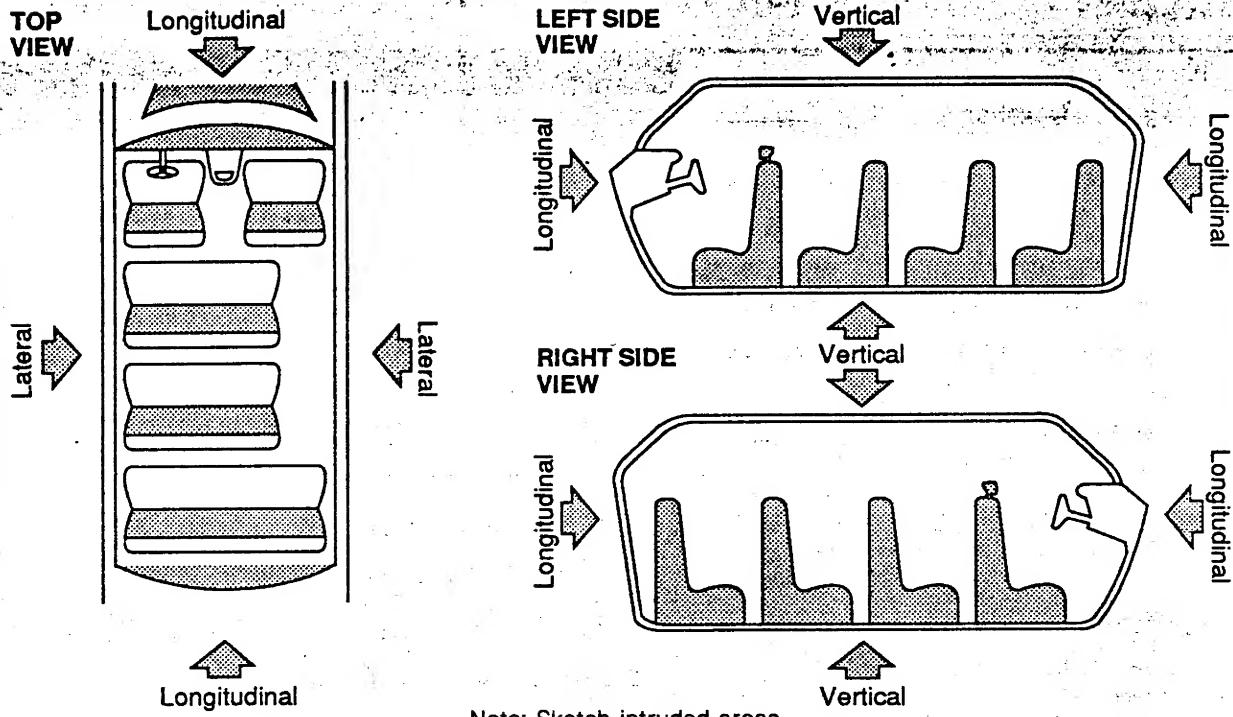
39. WS 1 40. LF 2 41. RF 2 42. LR 2 43. RR 2

44. BL 2 45. Roof 0 46. Other 0

- (0) No glazing contact and no damage, or no glazing
- (1) Fixed
- (2) Closed
- (3) Partially opened
- (4) Fully opened
- (9) Unknown

# INTRUSION WORK SHEET

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LOCATION OF INTRUSION	INTRUDED COMPONENT	COMPARISION VALUE	-	INTRUDED VALUE	=	INTRUSION	DOMINANT CRUSH DIRECTION
		-	-	-	=		
		-	-	-	=		
		-	-	-	=		
		-	-	-	=		
		-	-	-	=		
		-	-	-	=		
		-	-	-	=		
		-	-	-	=		
		-	-	-	=		
		-	-	-	=		
		-	-	-	=		
		-	-	-	=		
		-	-	-	=		
		-	-	-	=		
		-	-	-	=		
		-	-	-	=		
		-	-	-	=		

Document no more than the 15 most severe intrusions

## OCCUPANT AREA INTRUSION

Note: If no intrusions, leave variables IV 47-IV 86 blank.

Location of Intrusion	Intruding Component	Magnitude	Dominant Crush Direction
1st	47.	48.	49. 50.
2nd	51.	52.	53. 54.
3rd	55.	56.	57. 58.
4th	59.	60.	61. 62.
5th	63.	64.	65. 66.
6th	67.	68.	69. 70.
7th	71.	72.	73. 74.
8th	75.	76.	77. 78.
9th	79.	80.	81. 82.
10th	83.	84.	85. 86.

## LOCATION OF INTRUSION

Front Seat	Fourth Seat
(11) Left	(41) Left
(12) Middle	(42) Middle
(13) Right	(43) Right
Second Seat	(97) Catastrophic
(21) Left	(98) Other enclosed area (specify):
(22) Middle	
(23) Right	
Third Seat	(99) Unknown
(31) Left	
(32) Middle	
(33) Right	

## INTRUDING COMPONENT

## BEST AVAILABLE COPY

## Interior Components

- (01) Steering assembly
- (02) Instrument panel left
- (03) Instrument panel center
- (04) Instrument panel right
- (05) Toe pan
- (06) A-pillar
- (07) B-pillar
- (08) C-pillar
- (09) D-pillar
- (10) Door panel (side)
- (12) Roof (or convertible top)
- (13) Roof side rail
- (14) Windshield
- (15) Windshield header
- (16) Window frame
- (17) Floor pan (includes sill)
- (18) Backlight header
- (19) Front seat back
- (20) Second seat back
- (21) Third seat back
- (22) Fourth seat back
- (23) Fifth seat back
- (24) Seat cushion
- (25) Back door/panel (e.g., tailgate)
- (26) Other interior component (specify):

- (27) Side panel - forward of the A-pillar
- (28) Side panel - rear of the A-pillar

## Exterior Components

- (30) Hood
- (31) Outside surface of vehicle (specify):

- (32) Other exterior object in the environment

(specify): \_\_\_\_\_

- (33) Unknown exterior object

- (97) Catastrophic

- (98) Intrusion of unlisted component(s)

(specify): \_\_\_\_\_

- (99) Unknown

## MAGNITUDE OF INTRUSION

- (1)  $\geq 1$  inch but  $< 3$  inches
- (2)  $\geq 3$  inches but  $< 6$  inches
- (3)  $\geq 6$  inches but  $< 12$  inches
- (4)  $\geq 12$  inches but  $< 18$  inches
- (5)  $\geq 18$  inches but  $< 24$  inches
- (6)  $\geq 24$  inches
- (7) Catastrophic
- (9) Unknown

## DOMINANT CRUSH DIRECTION

- (1) Vertical
- (2) Longitudinal
- (3) Lateral
- (7) Catastrophic
- (9) Unknown

CASE NUMBER CA 9112

# MISSING DATA

THE FOLLOWING DATA ARE NOT INCLUDED IN THIS CASE:

PAGE NUMBER(S)

66

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## STEERING COLUMN

87. Steering Column Type 2

- (1) Fixed column  
 (2) Tilt column SET @ CENTER POSITION  
 (3) Telescoping column  
 (4) Tilt and telescoping column  
 (8) Other column type (specify): \_\_\_\_\_

(9) Unknown

## 88. Blank

(This variable is left blank so that numbering consistency can be maintained with the 1988-90 CDS.)

XX

## 89. Blank

(This variable is left blank so that numbering consistency can be maintained with the 1988-90 CDS.)

XXX

## 90. Blank

(This variable is left blank so that numbering consistency can be maintained with the 1988-90 CDS.)

XXX

## 91. Blank

(This variable is left blank so that numbering consistency can be maintained with the 1988-90 CDS.)

XXX

1.325" OF LEFT SHEAR  
COMPRESSION

1.625" OF RIGHT SHEAR  
COMPRESSION

92. Steering Rim/Spoke Deformation 2525 Code actual measured

deformation to the nearest inch. SLIGHT AT

- (0) No steering rim deformation  
 (1-5) Actual measured value  
 (6) 6 inches or more  
 (8) Observed deformation cannot be measured  
 (9) Unknown

UPPER  $\frac{1}{2}$ 93. Location of Steering Rim/Spoke Deformation 05

- (00) No steering rim deformation

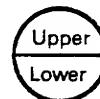
## Quarter Sections

- (01) Section A  
 (02) Section B  
 (03) Section C  
 (04) Section D



## Half Sections

- (05) Upper half of rim/spoke  
 (06) Lower half of rim/spoke  
 (07) Left half of rim/spoke  
 (08) Right half of rim/spoke



- (09) Complete steering wheel collapse  
 (10) Undetermined location  
 (99) Unknown

## INSTRUMENT PANEL

94. Odometer Reading 0 1 8,00018052 miles—Code mileage to the nearest 1,000 miles

- (000) No odometer  
 (001) Less than 1,500 miles  
 (300) 299,500 miles or more  
 (999) Unknown

Source: \_\_\_\_\_

95. Instrument Panel Damage from Occupant Contact? 0

- (0) No  
 (1) Yes  
 (9) Unknown

96. Knee Bolsters Deformed from Occupant Contact? 0

- (0) No CONTACTED, NOT DEFORMED  
 (1) Yes  
 (8) Not present  
 (9) Unknown

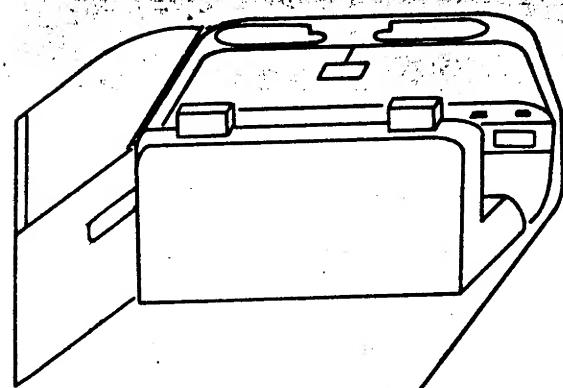
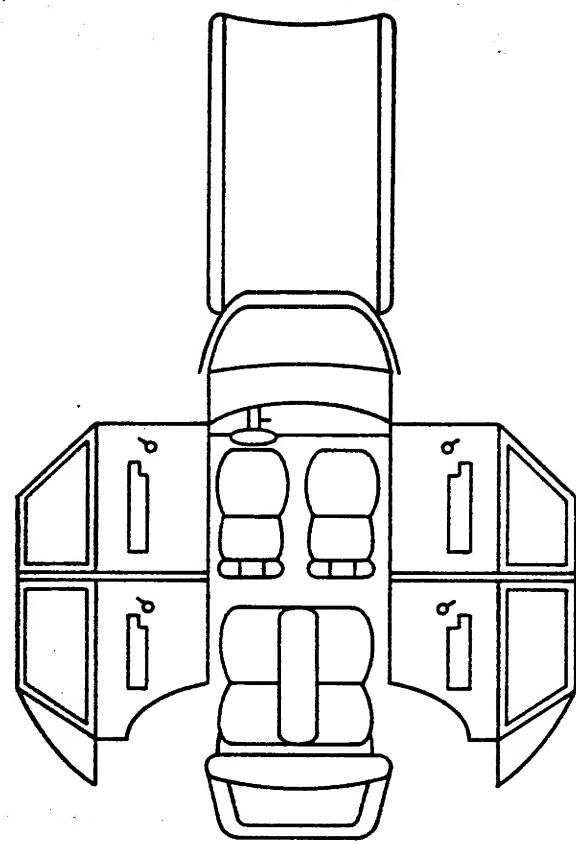
97. Did Glove Compartment Door Open During Collision(s)? 0

- (0) No  
 (1) Yes  
 (8) Not present  
 (9) Unknown

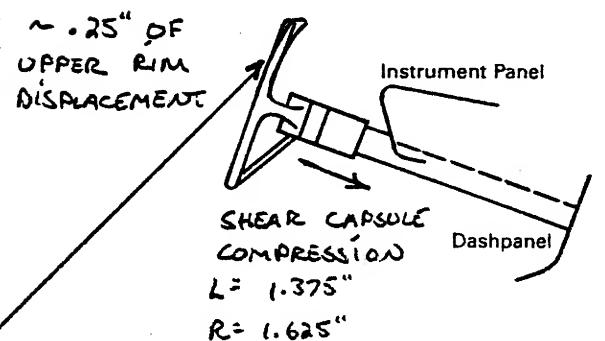
## VEHICLE INTERIOR SKETCHES

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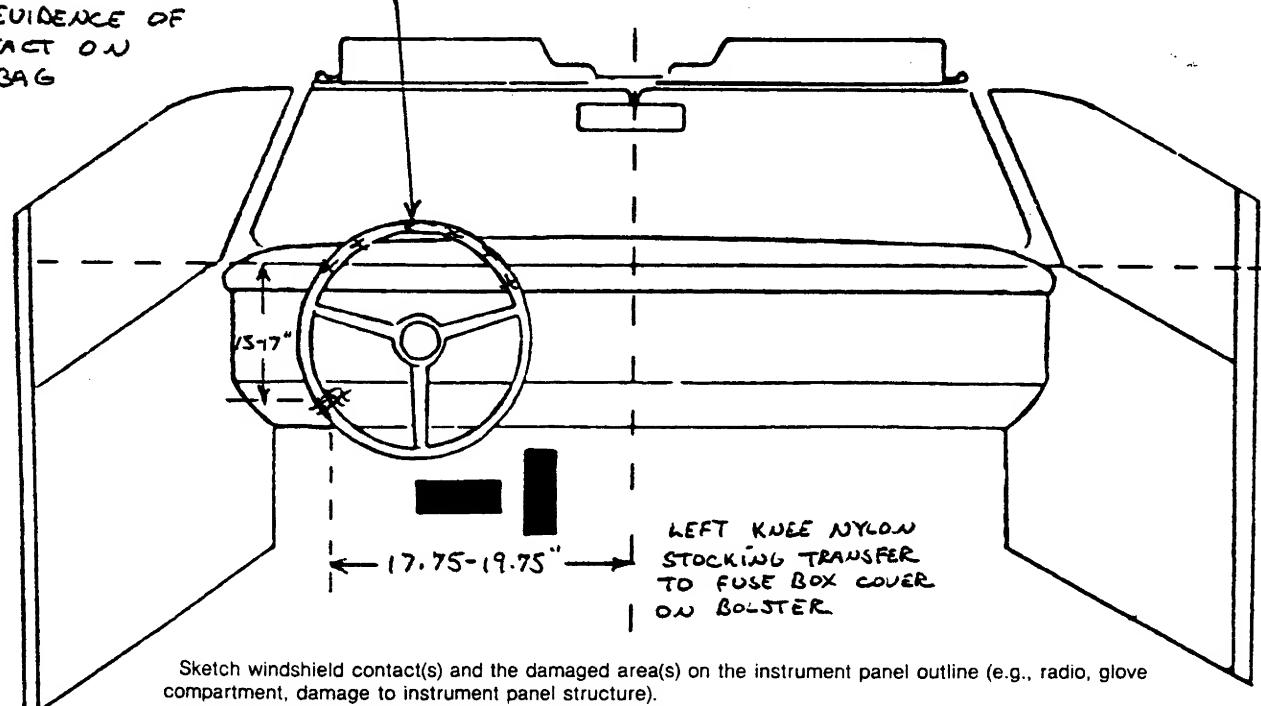
Note area of ejection/entrapment



LF SEAT SET TO A FORWARD POSITION  
(MOVED AT TIME OF INSPECTION)



NO EVIDENCE OF  
CONTACT ON  
AIR BAG



Sketch windshield contact(s) and the damaged area(s) on the instrument panel outline (e.g., radio, glove compartment, damage to instrument panel structure).

Cross hatch contact points, draw spider webs or use other annotation as may be appropriate.

Annotate the contacted area with a letter (begin with A) and list on the Points of Occupant Contact page.

## POINTS OF OCCUPANT CONTACT

Contact	Interior Component Contacted	Occupant No. If Known	Body Region If Known	Supporting Physical Evidence	Confidence Level of Contact Point
A	45/04	1	TORSO/DECK	OCCUPANT INJURY	1
B	13	1	(L) KNEE	NYLON STOCKING TRANSFER	1
C	04	1	TORSO/BAG	125" OF RIM BENDING, 1.6" OF SHEAR CAPSULE COMPRESSION	1
D					
E					
F					
G					
H					
I					
J					
K					
L					
M					
N					

## CODES FOR INTERIOR COMPONENTS

## FRONT

- (01) Windshield
- (02) Mirror
- (03) Sunvisor
- (04) Steering wheel rim
- (05) Steering wheel hub/spoke
- (06) Steering wheel (combination of codes 04 and 05)
- (07) Steering column, transmission selector lever, other attachment
- (08) Add on equipment (e.g., CB, tape deck, air conditioner)
- (09) Left instrument panel and below
- (10) Center instrument panel and below
- (11) Right instrument panel and below
- (12) Glove compartment door
- (13) Knee bolster
- (14) Windshield including one or more of the following: front header, A-pillar, instrument panel, mirror, or steering assembly (driver side only)
- (15) Windshield including one or more of the following: front header, A-pillar, instrument panel, or mirror (passenger side only)
- (16) Other front object (specify): \_\_\_\_\_

## LEFT SIDE

- (20) Left side interior surface, excluding hardware or armrests
  - (21) Left side hardware or armrest
  - (22) Left A pillar
  - (23) Left B pillar
  - (24) Other left pillar (specify): \_\_\_\_\_
- (25) Left side window glass or frame \_\_\_\_\_

- (26) Left side window glass including one or more of the following: frame, window sill, A-pillar, B-pillar, or roof side rail
- (27) Other left side object (specify): \_\_\_\_\_

- (48) Child safety seat (specify): \_\_\_\_\_

- (49) Other interior object (specify): \_\_\_\_\_

## RIGHT SIDE

- (30) Right side interior surface, excluding hardware or armrests
  - (31) Right side hardware or armrest
  - (32) Right A pillar
  - (33) Right B pillar
  - (34) Other right pillar (specify): \_\_\_\_\_
- (35) Right side window glass or frame
- (36) Right side window glass including one or more of the following: frame, window sill, A-pillar, B-pillar, or roof side rail
- (37) Other right side object (specify): \_\_\_\_\_

## ROOF

- (50) Front header
- (51) Rear header
- (52) Roof left side rail
- (53) Roof right side rail
- (54) Roof or convertible top

## FLOOR

- (56) Floor including toe pan
- (57) Floor or console mounted transmission lever, including console
- (58) Parking brake handle
- (59) Foot controls including parking brake

## REAR

- (60) Backlight (rear window)
- (61) Backlight storage rack, door, etc.
- (62) Other rear object (specify): \_\_\_\_\_

## INTERIOR

- (40) Seat, back support
  - (41) Belt restraint webbing/buckle
  - (42) Belt restraint B-pillar attachment point
  - (43) Other restraint system component (specify): \_\_\_\_\_
  - (44) Head restraint system
  - (45) Air bag
  - (46) Other occupants (specify): \_\_\_\_\_
- (47) Interior loose objects \_\_\_\_\_

## CONFIDENCE LEVEL OF CONTACT POINT

- (1) Certain
- (2) Probable
- (3) Possible
- (4) Unknown

## AUTOMATIC RESTRAINTS

**NOTES:** Encode the data for each applicable front seat position. The attributes for the variables may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

		Left	Center	Right
F I R S T	Availability		-	-
	Function		-	-
	Failure		-	-

### AIR BAGS

#### Air Bag System Availability/Function

- (0) Not equipped/not available
- (1) Air bag

Non-functional

- (2) Air bag disconnected (specify):

- 
- (3) Air bag not reinstalled

- (9) Unknown

#### Air Bag System Deployment

- (0) Not equipped/not available
- (1) Air bag deployed during accident
- (2) Air bag deployed inadvertently just prior to accident
- (3) Air bag deployed, accident sequence undetermined
- (4) Nondeployed
- (5) Unknown if deployed
- (9) Unknown

#### Did Air Bag System Fail?

- (0) Not equipped/not available
- (1) No
- (2) Yes (specify):

- 
- (9) Unknown

### AUTOMATIC BELTS

#### Automatic (Passive) Belt System Availability/Function

- (0) Not equipped/not available
- (1) 2 point automatic belts
- (2) 3 point automatic belts
- (3) Automatic belts—type unknown

Non-functional

- (4) Automatic belts destroyed or rendered inoperative
- (9) Unknown

#### Automatic (Passive) Belt System Use

- (0) Not equipped/not available/destroyed or rendered inoperative
- (1) Automatic belt in use
- (2) Automatic belt not in use (manually disconnected, motorized track inoperative)
- (3) Automatic belt use unknown
- (9) Unknown

### Automatic (Passive) Belt System Type

- (0) Not equipped/not available
- (1) Non-motorized system
- (2) Motorized system
- (9) Unknown

### Proper Use of Automatic (Passive) Belt System

- (0) Not equipped/not available/not used
- (1) Automatic belt used properly
- (2) Automatic belt used properly with child safety seat

### Automatic Belt Used Improperly

- (3) Automatic shoulder belt worn under arm
- (4) Automatic shoulder belt worn behind back
- (5) Automatic belt worn around more than one person
- (6) Lap portion of automatic belt worn on abdomen
- (7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify):

- 
- (8) Other improper use of automatic belt system

(specify):

- (9) Unknown

### Automatic (Passive) Belt Failure Modes During Accident

- (0) Not equipped/not available/not in use
- (1) No automatic belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify):

- 
- (6) Broken retractor

- (7) Combination of above (specify):

- (8) Other automatic belt failure (specify):

- 
- (9) Unknown

## MANUAL RESTRAINTS

**NOTES:** Encode the applicable data for each seat position in the vehicle. The attributes for the variables may be found below. Restraint systems should be assessed during the vehicle inspection, then coded on the Occupant Assessment Form.

If a child safety seat is present, encode the data on the back of this page.

If the vehicle has automatic restraints available, encode the appropriate data on the back of the previous page.

		Left	Center	Right
F I R S T	Availability	4	-	4
	Use	04	-	-
	Failure Modes	1	-	-
S E C O N D	Availability	4	3	4
	Use	-	-	-
	Failure Modes	-	-	-
T H I R D	Availability			
	Use			
	Failure Modes			
O T H E R	Availability			
	Use			
	Failure Modes			

**Manual (Active) Belt System Availability**

- (0) Not available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available – type unknown
- (8) Other belt (specify):  
\_\_\_\_\_
- (9) Unknown

**Manual (Active) Belt System Use**

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperative (specify):  
\_\_\_\_\_
- (02) Shoulder belt
- (03) Lap belt
- (04) Lap and shoulder belt
- (05) Belt used – type unknown  
\_\_\_\_\_

## (08) Other belt used (specify):

- (12) Shoulder belt used with child safety seat
- (13) Lap belt used with child safety seat
- (14) Lap and shoulder belt used with child safety seat
- (15) Belt used with child safety seat – type unknown
- (18) Other belt used with child safety seat (specify):  
\_\_\_\_\_

## (99) Unknown if belt used

**Manual (Active) Belt Failure Modes During Accident**

- (0) No manual belt used or not available
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify):  
\_\_\_\_\_
- (6) Broken retractor
- (7) Combination of above (specify):  
\_\_\_\_\_
- (8) Other manual belt failure (specify):  
\_\_\_\_\_
- (9) Unknown

## CHILD SAFETY SEAT FIELD ASSESSMENT

When a child safety seat is present enter the occupant's number in the first row and complete the column below the occupant's number using the codes listed below. Complete a column for each child safety seat present.

Occupant Number	<del>NONE</del>	<del>USED</del>			
1. Type of Child Safety Seat					
2. Child Safety Seat Orientation					
3. Child Safety Seat Harness Usage					
4. Child Safety Seat Shield Usage					
5. Child Safety Seat Tether Usage					
6. Child Safety Seat Make/Model	Specify Below for Each Child Safety Seat				

## 1. Type of Child Safety Seat

- (0) No child safety seat
- (1) Infant seat
- (2) Toddler seat
- (3) Convertible seat
- (4) Booster seat
- (7) Other type child safety seat (specify):

(8) Unknown child safety seat type  
 (9) Unknown if child safety seat used

## 2. Child Safety Seat Orientation

- (00) No child safety seat

Designed for Rear Facing for This Age/Weight

- (01) Rear facing
- (02) Forward facing
- (03) Other orientation (specify):

(04) Unknown orientation

Designed for Forward Facing for This Age/Weight

- (11) Rear facing
- (12) Forward facing
- (18) Other orientation (specify):

(19) Unknown orientation

Unknown Design or Orientation for This Age/Weight, or Unknown Age/Weight

- (21) Rear facing
- (22) Forward facing
- (28) Other orientation (specify):

(29) Unknown orientation

(99) Unknown if child safety seat used

## 3. Child Safety Seat Harness Usage

## 4. Child Safety Seat Shield Usage

## 5. Child Safety Seat Tether Usage

Note: Options Below Are Used for Variables 3-5.

- (00) No child safety seat

Not Designed with Harness/Shield/Tether

- (01) After market harness/shield/tether added, not used
- (02) After market harness/shield/tether used
- (03) Child safety seat used, but no after market harness/shield/tether added
- (09) Unknown if harness/shield/tether added or used

Designed with Harness/Shield/Tether

- (11) Harness/shield/tether not used
- (12) Harness/shield/tether used
- (19) Unknown if harness/shield/tether used

Unknown if Designed with Harness/Shield/Tether

- (21) Harness/shield/tether not used
- (22) Harness/shield/tether used
- (29) Unknown if harness/shield/tether used
- (99) Unknown if child safety seat used

## 6. Child Safety Seat Make/Model

(Specify make/model and occupant number)

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## HEAD RESTRAINTS/SEAT EVALUATION

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**NOTES:** Encode the applicable data for each seat position in the vehicle. The attributes for these variables may be found at the bottom of the page. Head restraint type/damage and seat type/performance should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

		Left	Center	Right
F I R S T	Head Restraint Type/Damage	3	-	3
	Seat Type	01	-	01
	Seat Performance	1	-	1
S E C O N D	Head Restraint Type/Damage	0	0	0
	Seat Type	05	05	05
	Seat Performance	1	1	1
T H I R D	Head Restraint Type/Damage			
	Seat Type			
	Seat Performance			
O T H E R	Head Restraint Type/Damage			
	Seat Type			
	Seat Performance			

**Head Restraint Type/Damage by Occupant at This Occupant Position**

- (0) No head restraints
- (1) Integral — no damage
- (2) Integral — damaged during accident
- (3) Adjustable — no damage
- (4) Adjustable — damaged during accident
- (5) Add-on — no damage
- (6) Add-on — damaged during accident
- (8) Other (specify): \_\_\_\_\_
- (9) Unknown

**Seat Performance (This Occupant Position)**

- (0) No seat
- (1) No seat performance failure(s)
- (2) Seat adjusters failed
- (3) Seat back folding locks failed
- (4) Seat tracks/anchors failed
- (5) Deformed by impact of occupant
- (6) Deformed by passenger compartment intrusion (specify): \_\_\_\_\_

**Seat Type (This Occupant Position)**

- (00) No seat
- (01) Bucket
- (02) Bucket with folding back
- (03) Bench
- (04) Bench with separate back cushions
- (05) Bench with folding back(s)
- (06) Split bench with separate back cushions
- (07) Split bench with folding back(s)
- (08) Pedestal (i.e., van type)
- (09) Other seat type (specify): \_\_\_\_\_
- (99) Unknown

- (7) Combination of above (specify): \_\_\_\_\_
- (8) Other (specify): \_\_\_\_\_

- (9) Unknown

**DESCRIBE ANY INDICATION OF ABNORMAL OCCUPANT POSTURE (I.E. UNUSUAL OCCUPANT CONTACT PATTERN)**

## EJECTION/ENTRAPMENT DATA

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Complete the following if the researcher has any indications that an occupant was either ejected from or entrapped in the vehicle. Code the appropriate data on the Occupant Assessment Form.

EJECTION      No [  ] Yes [  ]

Describe indications of ejection and body parts involved in partial ejection(s):

---



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Occupant Number						
Ejection						
(Note on Vehicle Interior Sketch) Ejection Area						
Ejection Medium						
Medium Status						

<b>Ejection</b> (1) Complete ejection (2) Partial ejection (3) Ejection, unknown degree (9) Unknown	(7) Roof (8) Other area (e.g., back of pickup, etc.) (specify): <hr/> (9) Unknown	(5) Integral structure (8) Other medium (specify): <hr/> (9) Unknown
<b>Ejection Area</b> (1) Windshield (2) Left front (3) Right front (4) Left rear (5) Right rear (6) Rear	<b>Ejection Medium</b> (1) Door/hatch/tailgate (2) Nonfixed roof structure (3) Fixed glazing (4) Nonfixed glazing (specify): <hr/>	<b>Medium Status (Immediately Prior to Impact)</b> (1) Open (2) Closed (3) Integral structure (9) Unknown

ENTRAPMENT      No [  ] Yes [  ]

Describe entrapment mechanism:

---



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Component(s):

(Note in vehicle interior diagram)

APPENDIX E

NASS Occupant Forms



## OCCUPANT ASSESSMENT FORM

1. Primary Sampling Unit Number \_\_\_\_\_
2. Case Number - Stratum 91-12
3. Vehicle Number 01
4. Occupant Number 01

### OCCUPANT'S CHARACTERISTICS

5. Occupant's Age 36  
Code actual age at time of accident.  
(00) Less than one year old (specify by month): \_\_\_\_\_  
(97) 97 years and older  
(99) Unknown
6. Occupant's Sex 2  
(1) Male  
(2) Female  
(9) Unknown
7. Occupant's Height 63  
Code actual height to the nearest inch.  
(99) Unknown
8. Occupant's Weight / 04-120 112  
Code actual weight to the nearest pound.  
(999) Unknown
9. Occupant's Role 1  
(1) Driver  
(2) Passenger  
(9) Unknown
10. Occupant's Seat Position 11  
Front Seat  
(11) Left side  
(12) Middle  
(13) Right Side  
(14) Other (specify): \_\_\_\_\_  
(15) On or in the lap of another occupant  
  
Second Seat  
(21) Left side  
(22) Middle  
(23) Right Side  
(24) Other (specify): \_\_\_\_\_  
(25) On or in the lap of another occupant  
  
Third Seat  
(31) Left side  
(32) Middle  
(33) Right Side  
(34) Other (specify): \_\_\_\_\_  
(35) On or in the lap of another occupant  
  
Fourth Seat  
(41) Left side  
(42) Middle  
(43) Right Side  
(44) Other (specify): \_\_\_\_\_  
(45) On or in the lap of another occupant  
  
(97) In or on unenclosed area  
(98) Other seat (specify): \_\_\_\_\_  
(99) Unknown

### 11. Occupant's Posture

- (0) Normal posture
- (1) Abnormal posture (specify): SLUMPED FORWARD
- (9) Unknown

### EJECTION/ENTRAPMENT

12. Ejection 0  
(0) No ejection  
(1) Complete ejection  
(2) Partial ejection  
(3) Ejection, unknown degree  
(9) Unknown
13. Ejection Area 0  
(0) No ejection  
(1) Windshield  
(2) Left front  
(3) Right front  
(4) Left rear  
(5) Right rear  
(6) Rear  
(7) Roof  
(8) Other area (e.g., back of pickup, etc.)  
(specify): \_\_\_\_\_  
(9) Unknown
14. Ejection Medium 0  
(0) No ejection  
(1) Door/hatch/tailgate  
(2) Nonfixed roof structure  
(3) Fixed glazing  
(4) Nonfixed glazing (specify): \_\_\_\_\_  
  
(5) Integral structure  
(8) Other medium (specify): \_\_\_\_\_  
  
(9) Unknown
15. Medium Status (Immediately Prior to Impact) 0  
(0) No ejection  
(1) Open  
(2) Closed  
(3) Integral structure  
(9) Unknown
16. Entrapment 0  
(NOTE: Entrapped means that part of the person was in the vehicle and mechanically restrained; jammed doors and immobilizing injuries by themselves are not sufficient to constitute entrapment.)  
(0) Not entrapped  
(1) Entrapped  
(9) Unknown

**RESTRAINT SYSTEM AND SEAT EVALUATION****17. Manual (Active) Belt System Availability**

- (0) Not available
- (1) Belt removed/destroyed
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt available—type unknown
- (8) Other belt (specify): \_\_\_\_\_

(9) Unknown

**18. Manual (Active) Belt System Use**

- (00) None used, not available, or belt removed/destroyed
- (01) Inoperative (specify): \_\_\_\_\_
- (02) Shoulder belt
- (03) Lap belt
- (04) Lap and shoulder belt
- (05) Belt used—type unknown
- (08) Other belt used (specify):
- (12) Shoulder belt used with child safety seat
- (13) Lap belt used with child safety seat
- (14) Lap and shoulder belt used with child safety seat
- (15) Belt used with child safety seat—type unknown
- (18) Other belt used with child safety seat  
(specify): \_\_\_\_\_
- (99) Unknown if belt used

**19. Proper Use of Manual (Active) Belts**

- (0) None used or not available
- (1) Belt used properly
- (2) Belt used properly with child safety seat

**Belt Used Improperly**

- (3) Shoulder belt worn under arm
- (4) Shoulder belt worn behind back or seat
- (5) Belt worn around more than one person
- (6) Lap belt worn on abdomen
- (7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify): \_\_\_\_\_

- (8) Other improper use of manual belt system (specify): \_\_\_\_\_

(9) Unknown

**20. Manual (Active) Belt Failure Modes During Accident**

- (0) No manual belt used or not available
- (1) No manual belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify): \_\_\_\_\_
- (6) Broken retractor
- (7) Combination of above (specify): \_\_\_\_\_
- (8) Other manual belt failure (specify): \_\_\_\_\_

(9) Unknown

**21. Air Bag System Availability/Function**

- (0) Not equipped/not available
  - (1) Air bag
- Non-functional
- (2) Air bag disconnected (specify): \_\_\_\_\_
  - (3) Air bag not reinstalled
  - (9) Unknown

**22. Air Bag System Deployment**

- (0) Not equipped/not available
- (1) Air bag deployed during accident
- (2) Air bag deployed inadvertently just prior to accident
- (3) Air bag deployed, accident sequence undetermined
- (4) Nondeployed
- (5) Unknown if deployed
- (9) Unknown

**23. Did Air Bag System Fail?**

- (0) Not equipped/not available
- (1) No
- (2) Yes (specify): \_\_\_\_\_

(9) Unknown

Note: See Variables 44 through 48 (Page 5) for Information on Automatic Belts

**24. Police Reported Restraint Use**

- (0) None used
- (1) Police did not indicate restraint use
- (2) Shoulder belt
- (3) Lap belt
- (4) Lap and shoulder belt
- (5) Belt used, type not specified
- (6) Child safety seat
- (7) Other or automatic restraint (specify): 3-POINT LAP + SHOULDER + AIR BAG
- (8) Restrained, type unknown
- (9) Police indicated "unknown"

**25. Head Restraint Type/Damage by Occupant at This Occupant Position**

- (0) No head restraints
- (1) Integral—no damage
- (2) Integral—damaged during accident
- (3) Adjustable—no damage
- (4) Adjustable—damaged during accident
- (5) Add-on—no damage
- (6) Add-on—damaged during accident
- (8) Other (specify): \_\_\_\_\_

(9) Unknown

**26. Seat Type (This Occupant Position)**

- O L
- (00) Occupant not seated or no seat
  - (01) Bucket
  - (02) Bucket with folding back
  - (03) Bench
  - (04) Bench with separate back cushions
  - (05) Bench with folding back(s)
  - (06) Split bench with separate back cushions
  - (07) Split bench with folding back(s)
  - (08) Pedestal (i.e., van type)
  - (09) Other seat type (specify):  
\_\_\_\_\_

(99) Unknown  
\_\_\_\_\_

**27. Seat Performance (This Occupant Position)**

- 1
- (0) Occupant not seated or no seat
  - (1) No seat performance failure(s)
  - (2) Seat adjusters failed
  - (3) Seat back folding locks failed
  - (4) Seat track/anchors failed
  - (5) Deformed by impact of occupant
  - (6) Deformed by passenger compartment intrusion (specify):  
\_\_\_\_\_

(7) Combination of above (specify):  
\_\_\_\_\_

(8) Other (specify):  
\_\_\_\_\_

(9) Unknown  
\_\_\_\_\_

**CHILD SAFETY SEAT****28. Child Safety Seat Make/Model**

O O O

- (000) No child safety seat

Applicable codes are found in your NASS CDS

Data Collection, Coding, and Editing Manual

- (997) Other make/model (specify):  
\_\_\_\_\_

- (998) Unknown make/model  
\_\_\_\_\_

(999) Unknown if child safety seat used  
\_\_\_\_\_

**29. Type of Child Safety Seat**

O

- (0) No child safety seat

- (1) Infant seat

- (2) Toddler seat

- (3) Convertible seat

- (4) Booster seat

- (7) Other type child safety seat (specify):  
\_\_\_\_\_

- (8) Unknown child safety seat type  
\_\_\_\_\_

(9) Unknown if child safety seat used  
\_\_\_\_\_

**30. Child Safety Seat Orientation**

O O

(00) No child safety seat

Designed for Rear Facing for This Age/Weight

- (01) Rear facing
- (02) Forward facing
- (08) Other orientation (specify):  
\_\_\_\_\_

(09) Unknown orientation

Designed for Forward Facing for This Age/Weight

- (11) Rear facing
- (12) Forward facing
- (18) Other orientation (specify):  
\_\_\_\_\_

(19) Unknown orientation

Unknown Design or Orientation for This Age/Weight, or Unknown Age/Weight

- (21) Rear facing
- (22) Forward facing
- (28) Other orientation (specify):  
\_\_\_\_\_

(29) Unknown orientation

(99) Unknown if child safety seat used

**31. Child Safety Seat Harness Usage**

O O

**32. Child Safety Seat Shield Usage**

O O

**33. Child Safety Seat Tether Usage**

O O

Note: Options below applicable to Variables OA31-OA33.

- (00) No child safety seat

Not Designed with Harness/Shield/Tether

- (01) After market harness/shield/tether added, not used
- (02) After market harness/shield/tether used
- (03) Child safety seat used, but no after market harness/shield/tether added
- (09) Unknown if harness/shield/tether added or used  
\_\_\_\_\_

Designed with Harness/Shield/Tether

- (11) Harness/shield/tether not used
- (12) Harness/shield/tether used
- (19) Unknown if harness/shield/tether used  
\_\_\_\_\_

Unknown If Designed with Harness/Shield/Tether

- (21) Harness/shield/tether not used
- (22) Harness/shield/tether used
- (29) Unknown if harness/shield/tether used  
\_\_\_\_\_

(99) Unknown if child safety seat used

**INJURY CONSEQUENCES****34. Injury Severity (Police Rating)**

- (0) O-No injury  
 (1) C-Possible injury  
 (2) B-Nonincapacitating injury  
 (3) A-Incapacitating injury  
 (4) K-Killed  
 (5) U-Injury, severity unknown  
 (6) Died prior to accident  
 (9) Unknown

**35. Treatment—Mortality**

- (0) No treatment  
 (1) Fatal  
 (2) Fatal—ruled disease

Nonfatal

- (3) Hospitalized  
 (4) Transported and released  
 (5) Treatment at scene—nontransported  
 (6) Treatment later  
 (8) Treatment—other (specify):

---

(9) Unknown**36. Type of Medical Facility (for Initial Treatment)**

- (0) Not treated at a medical facility  
 (1) Trauma center  
 (2) Hospital  
 (3) Medical clinic  
 (4) Physician's office  
 (5) Treatment later at medical facility  
 (8) Other (specify):

---

(9) Unknown**37. Hospital stay**

- O O  
 — Code number of days (up through 60) that the occupant stayed in the hospital  
 (00) Not hospitalized  
 (61) 61 days or more  
 (99) Unknown

**38. Working Days Lost**

- 62  
 — Code the number of days (up through 60) that the occupant lost from work due to the accident  
 (00) No working days lost  
 (61) 61 days or more  
 (62) Fatally injured  
 (97) Not working prior to accident  
 (99) Unknown

**39. Time to Death**

- 04  
 — Code number of hours from time of accident to time of death up through 24 hours. If time of death is greater than 24 hours, code number of days. (Note: 1 day = 31, 2 days = 32, ... n days = 30 + n up through 30 days = 60)  
 (00) Not fatal  
 (96) Fatal—ruled disease  
 (99) Unknown

**40. 1st Medically Reported Cause of Death****41. 2nd Medically Reported Cause of Death****42. 3rd Medically Reported Cause of Death**

- 01  
00  
00  
 — Code the Occupant Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this occupant's death  
 (00) Not fatal or no additional causes  
 (97) Other result (specify):

---

(99) Unknown**43. Number of Recorded Injuries for This Occupant**

- 19  
 — Code the actual number of injuries recorded for this occupant.  
 (00) No recorded injuries  
 (97) Injured, details unknown  
 (99) Unknown if injured

44. Automatic (Passive) Belt System Availability/  
Function 

- (0) Not equipped/not available
- (1) 2 point automatic belts
- (2) 3 point automatic belts
- (3) Automatic belts-type unknown

Non-functional

- (4) Automatic belts destroyed or rendered inoperative
- (9) Unknown

45. Automatic (Passive) Belt System Use 

- (0) Not equipped/not available/destroyed or rendered inoperative
- (1) Automatic belt in use
- (2) Automatic belt not in use (manually disconnected, motorized track inoperative)  
(specify): \_\_\_\_\_

- (3) Automatic belt use unknown
- (9) Unknown

46. Automatic (Passive) Belt System Type 

- (0) Not equipped/not available
- (1) Non-motorized system
- (2) Motorized system
- (9) Unknown

47. Proper Use of Automatic (Passive)  
Belt System 

- (0) Not equipped/not available/not used
- (1) Automatic belt used properly
- (2) Automatic belt used properly with child safety seat

Automatic Belt Used Improperly

- (3) Automatic shoulder belt worn under arm
- (4) Automatic shoulder belt worn behind back
- (5) Automatic belt worn around more than one person
- (6) Lap portion of automatic belt worn on abdomen
- (7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify): \_\_\_\_\_

- (8) Other improper use of automatic belt system  
(specify): \_\_\_\_\_

- (9) Unknown

48. Automatic (Passive) Belt Failure Modes  
During Accident 

- (0) Not equipped/not available/not in use
- (1) No automatic belt failure(s)
- (2) Torn webbing (stretched webbing not included)
- (3) Broken buckle or latchplate
- (4) Upper anchorage separated
- (5) Other anchorage separated (specify):  
\_\_\_\_\_
- (6) Broken retractor
- (7) Combination of above (specify):  
\_\_\_\_\_
- (8) Other automatic belt failure (specify):  
\_\_\_\_\_

- (9) Unknown

UPDATE CANDIDATE? NO [] YES []OCCUPANT INJURY FORM INCLUDED WITH INITIAL SUBMISSION? NO [] YES []

\*\*\* STOP HERE \*\*\*  
 IF THERE ARE NO RECORDED INJURIES  
 (I.E., OA43 = 00,97,99)



U.S. Department of Transportation

National Highway Traffic Safety  
Administration

Form Approved

O.M.B. No. 2127-0021

NATIONAL ACCIDENT SAMPLING SYSTEM  
CRASHWORTHINESS DATA SYSTEM

## OCCUPANT INJURY FORM

1. Primary Sampling Unit Number

3. Vehicle Number

O 1

2. Case Number - Stratum

9 1 - 1 2

4. Occupant Number

O 1

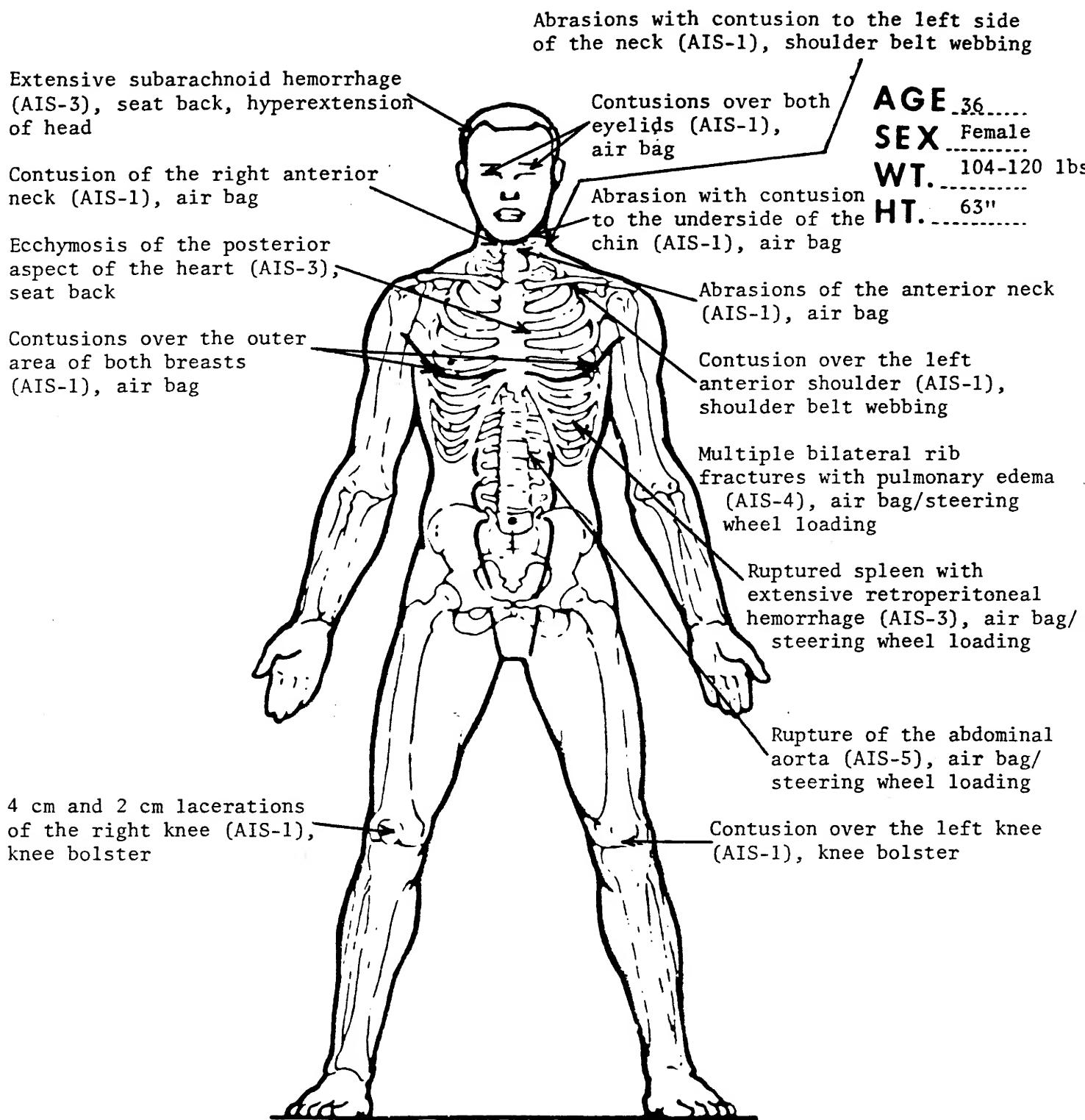
## INJURY DATA

Record below the actual injuries sustained by this occupant that were identified from the official and unofficial data sources. Remember not to double count an injury just because it was identified from two different sources. If greater than ten injuries have been documented, encode the balance on the Occupant Injury Supplement.

	O.I.C.—A.I.S.						Injury Source Confidence Level	Direct/Indirect Injury	Occupant Area Intrusion No.
	Source of Injury Data	Body Region	Aspect	Lesion	System Organ	A.I.S. Severity	Injury Source		
1st	5. <u>L</u>	6. <u>M</u>	7. <u>C</u>	8. <u>R</u>	9. <u>A</u>	10. <u>S</u>	11. <u>4 5 / 0 4</u>	12. <u>L</u>	13. <u>1</u> 14. <u>0 0</u>
2nd	15. <u>I</u>	16. <u>C</u>	17. <u>B</u>	18. <u>E</u>	19. <u>S</u>	20. <u>Y</u>	21. <u>4 5 / 0 4</u>	22. <u>L</u>	23. <u>1</u> 24. <u>0 0</u>
3rd	25. <u>L</u>	26. <u>M</u>	27. <u>L</u>	28. <u>F</u>	29. <u>Q</u>	30. <u>3</u>	31. <u>4 5 / 0 4</u>	32. <u>L</u>	33. <u>1</u> 34. <u>0 0</u>
4th	35. <u>I</u>	36. <u>C</u>	37. <u>C</u>	38. <u>C</u>	39. <u>H</u>	40. <u>3</u>	41. <u>4 0</u>	42. <u>L</u>	43. <u>1</u> 44. <u>0 0</u>
5th	45. <u>L</u>	46. <u>H</u>	47. <u>U</u>	48. <u>U</u>	49. <u>B</u>	50. <u>3</u>	51. <u>4 0</u>	52. <u>L</u>	53. <u>2</u> 54. <u>0 0</u>
6th	55. <u>L</u>	56. <u>E</u>	57. <u>L</u>	58. <u>C</u>	59. <u>O</u>	60. <u>I</u>	61. <u>4 5</u>	62. <u>L</u>	63. <u>1</u> 64. <u>0 0</u>
7th	65. <u>I</u>	66. <u>E</u>	67. <u>R</u>	68. <u>C</u>	69. <u>O</u>	70. <u>I</u>	71. <u>4 5</u>	72. <u>L</u>	73. <u>1</u> 74. <u>0 0</u>
8th	75. <u>I</u>	76. <u>S</u>	77. <u>L</u>	78. <u>C</u>	79. <u>I</u>	80. <u>I</u>	81. <u>4 1</u>	82. <u>L</u>	83. <u>1</u> 84. <u>0 0</u>
9th	85. <u>L</u>	86. <u>E</u>	87. <u>I</u>	88. <u>A</u>	89. <u>I</u>	90. <u>I</u>	91. <u>4 5</u>	92. <u>L</u>	93. <u>1</u> 94. <u>0 0</u>
10th	95. <u>I</u>	96. <u>E</u>	97. <u>I</u>	98. <u>C</u>	99. <u>I</u>	100. <u>I</u>	101. <u>4 5</u>	102. <u>L</u>	103. <u>1</u> 104. <u>0 0</u>

## OCCUPANT INJURY DATA

Source of Injury Data	Body Region	O.I.C.—A.I.S.			A.I.S. Severity	Injury Source	Injury Source Confidence Level	Direct/ Indirect Injury	Occupant Area Intrusion No.
		Aspect	Lesion	System Organ					
11th	L	N	A	A	I	L	45	L	00
12th	L	N	L	A	I	L	41	L	00
13th	L	N	L	C	I	L	41	L	00
14th	L	N	A	C	I	L	45	L	00
15th	L	C	L	C	I	L	45	L	00
16th	L	C	R	C	I	L	45	L	00
17th	L	K	R	L	I	L	13	L	00
18th	L	K	R	L	I	L	13	L	00
19th	L	K	L	C	I	L	13	L	00
20th	—	—	—	—	—	—	—	—	—
21st	—	—	—	—	—	—	—	—	—
22nd	—	—	—	—	—	—	—	—	—
23rd	—	—	—	—	—	—	—	—	—



## SOURCE OF INJURY DATA

### OFFICIAL

- (1) Autopsy records with or without hospital medical records
- (2) Hospital medical records other than emergency room (e.g. discharge summary)
- (3) Emergency room records only (including associated X-rays or other lab reports)
- (4) Private physician, walk-in or emergency clinic

### UNOFFICIAL

- (5) Lay coroner report
- (6) E.M.S. personnel
- (7) Interviewee
- (8) Other source (specify): \_\_\_\_\_
- (9) Police

## INJURY SOURCE

### FRONT

- (1) Windshield
- (2) Mirror
- (3) Sunvisor
- (4) Steering wheel rim
- (5) Steering wheel hub/spoke
- (6) Steering wheel (combination of codes 04 and 05)
- (7) Steering column, transmission selector lever, other attachment
- (8) Add-on equipment (e.g., CB, tape deck, air conditioner)
- (9) Left instrument panel and below
- (10) Center instrument panel and below
- (11) Right instrument panel and below
- (12) Glove compartment door
- (13) Knee bolster
- (14) Windshield including one or more of the following: front header, A-pillar, instrument panel, mirror, or steering assembly (driver side only)
- (15) Windshield including one or more of the following: front header, A-pillar, instrument panel, or mirror (passenger side only)
- (16) Other front object (specify): \_\_\_\_\_

### LEFT SIDE

- (20) Left side interior surface, excluding hardware or armrests
- (21) Left side hardware or armrest
- (22) Left A pillar
- (23) Left B pillar
- (24) Other left pillar (specify): \_\_\_\_\_

(25) Left side window glass or frame

- (26) Left side window glass including one or more of the following: frame, window sill, A-pillar, B-pillar, or roof side rail
- (27) Other left side object (specify): \_\_\_\_\_

### RIGHT SIDE

- (30) Right side interior surface, excluding hardware or armrests
- (31) Right side hardware or armrest
- (32) Right A pillar
- (33) Right B pillar
- (34) Other right pillar (specify): \_\_\_\_\_
- (35) Right side window glass or frame
- (36) Right side window glass including one or more of the following: frame, window sill, A-pillar, B-pillar, roof side rail
- (37) Other right side object (specify): \_\_\_\_\_

### INTERIOR

- (40) Seat, back support
- (41) Belt restraint webbing/buckle
- (42) Belt restraint B-pillar attachment point
- (43) Other restraint system component (specify): \_\_\_\_\_
- (44) Head restraint system
- (45) Air bag
- (46) Other occupants (specify): \_\_\_\_\_
- (47) Interior loose objects
- (48) Child safety seat (specify): \_\_\_\_\_
- (49) Other interior object (specify): \_\_\_\_\_

### ROOF

- (50) Front header
- (51) Rear header
- (52) Roof left side rail
- (53) Roof right side rail
- (54) Roof or convertible top

### FLOOR

- (56) Floor including toe pan
- (57) Floor or console mounted transmission lever, including console
- (58) Parking brake handle
- (59) Foot controls including parking brake
- (60) Backlight (rear window)
- (61) Backlight storage rack, door, etc.
- (62) Other rear object (specify): \_\_\_\_\_

### EXTERIOR OF OCCUPANT'S VEHICLE

- (65) Hood
- (66) Outside hardware (e.g., outside mirror, antenna)
- (67) Other exterior surface or tires (specify): \_\_\_\_\_

- (68) Unknown exterior objects

### EXTERIOR OF OTHER MOTOR VEHICLE

- (70) Front bumper
- (71) Hood edge
- (72) Other front of vehicle (specify): \_\_\_\_\_

- (73) Hood

- (74) Hood ornament
- (75) Windshield, roof rail, A-pillar
- (76) Side surface
- (77) Side mirrors
- (78) Other side protrusions (specify): \_\_\_\_\_

- (79) Rear surface

- (80) Undercarriage
- (81) Tires and wheels
- (82) Other exterior of other motor vehicle (specify): \_\_\_\_\_

- (83) Unknown exterior of other motor vehicle

### OTHER VEHICLE OR OBJECT IN THE ENVIRONMENT

- (84) Ground
- (85) Other vehicle or object (specify): \_\_\_\_\_

- (86) Unknown vehicle or object

### NONCONTACT INJURY

- (90) Fire in vehicle
- (91) Flying glass
- (92) Other noncontact injury source (specify): \_\_\_\_\_

- (97) Injured, unknown source

## INJURY SOURCE CONFIDENCE LEVEL

- (1) Certain
- (2) Probable
- (3) Possible
- (9) Unknown

## DIRECT/INDIRECT INJURY

- (1) Direct contact injury
- (2) Indirect contact injury
- (3) Noncontact injury
- (7) Injured, unknown source

## OCCUPANT INJURY CLASSIFICATION

### O.I.C. Body Region

- |     |                                       |     |                               |
|-----|---------------------------------------|-----|-------------------------------|
| (M) | Abdomen                               | (W) | Wrist—hand                    |
| (O) | Ankle—foot                            |     | <b>Aspect of Injury</b>       |
| (A) | Arm (upper)                           | (A) | Anterior—front                |
| (B) | Back—thoracolumbar spine              | (B) | Bilateral (rib fracture only) |
| (C) | Chest                                 | (C) | Central                       |
| (E) | Elbow                                 | (I) | Inferior—lower                |
| (F) | Face                                  | (U) | Injured, unknown aspect       |
| (R) | Forearm                               | (L) | Left                          |
| (H) | Head—skull                            | (P) | Posterior—back                |
| (U) | Injured, unknown region               | (R) | Right                         |
| (K) | Knee                                  | (S) | Superior—upper                |
| (L) | Leg (lower)                           | (W) | Whole region                  |
| (Y) | Lower limb(s) (whole or unknown part) |     | <b>Lesion</b>                 |
| (N) | Neck—cervical spine                   | (A) | Abrasions                     |
| (P) | Pelvic—hip                            | (M) | Amputation                    |
| (S) | Shoulder                              | (V) | Avulsion                      |
| (T) | Thigh                                 | (B) | Burn                          |
| (X) | Upper limb(s) (whole or unknown part) | (K) | Concussion                    |
| (O) | Whole body                            | (C) | Contusion                     |
|     |                                       | (N) | Crush                         |

### System/Organ

- |     |                              |
|-----|------------------------------|
| (G) | Detachment, separation       |
| (D) | Dislocation                  |
| (F) | Fracture                     |
| (Z) | Fracture and dislocation     |
| (U) | Injured, unknown lesion      |
| (L) | Laceration                   |
| (O) | Other                        |
| (P) | Perforation, puncture        |
| (R) | Rupture                      |
| (S) | Sprain                       |
| (T) | Strain                       |
| (E) | Total severance, transection |
| (W) | All systems in region        |
| (A) | Arteries—veins               |
| (B) | Brain                        |
| (D) | Digestive                    |
| (E) | Ears                         |
| (O) | Eye                          |
| (H) | Heart                        |
| (U) | Injured, unknown system      |

### Integumentary

### Joints

### Kidneys

### Liver

### Muscles

### Nervous system

### Pulmonary—lungs

### Respiratory

### Skeletal

### Spinal cord

### Spleen

### Thyroid, other endocrine gland

### Urogenital

### Vertebrae

- | Abbreviated Injury Scale |                           |
|--------------------------|---------------------------|
| (1)                      | Minor injury              |
| (2)                      | Moderate injury           |
| (3)                      | Serious injury            |
| (4)                      | Severe injury             |
| (5)                      | Critical injury           |
| (6)                      | Maximum (untreatable)     |
| (7)                      | Injured, unknown severity |